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TRANSACTIONS

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Contents

	Page
Editorial	ii
Scarborough's Water Supply: The influence of water on the expansion and prosperity of Victorian Scarborough and on later events by L. S. Debenham	1
The Early Deer Parks of North-East Yorkshire Part II. The Catalogue (cont.) by F. C. Rimington	33
Archaeological Index for North-East Yorkshire 1971-72	37

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EDITORIAL

This year's Transactions contains the important contribution to the history of Scarborough's Water Supply by Mr Debenham whose researches in this field are widely known to members of the society.

Two important announcements concerning the publication of the society's Research Reports can be made. No. 8 of this series is now available to members at the pre-publication price of £1.25 (£1.32 post free) under the title CRUCK-FRAMED BUILDINGS IN RYEDALE AND ESKDALE. Further details of this report are given on the last page of these Transactions.

Research Report No. 6: SCARBOROUGH 966-1966, published to commemorate the 1000th anniversary of the foundation of the town of Scarborough, has been reprinted after being unobtainable for several years. It has been much in demand and is now available at 65p (72p post free).

Contributors to the next issue of the Transactions should submit their material as early as possible, and all completed papers must be received by the Editor at the Scarborough Museum not later than 15th June 1973.

NOTE ON COVER ILLUSTRATION

Orchard House, Harome, near Helmsley, a three-bay long-house with impressive crucks and stud-and-panel partitions. One of the illustrations in the Society's latest publication: CRUCK-FRAMED BUILDINGS IN RYEDALE AND ESKDALE.

SCARBOROUGH'S WATER SUPPLY:

The Influence of Water on the Expansion and Prosperity of Victorian Scarborough and on Later Events

By L. S. Debenham[1]

PROLOGUE

It may seem, at first sight, a surprising statement that the development and prosperity of Victorian Scarborough was due to the introduction of the steam water pump.

Scarborough was, and always had been, a relatively small place; buildings huddled, at first in the Harbour area, and gradually spreading up the hill; but even at the end of the Georgian period the town was measured from the Newborough Bar to the Quayside, a mere 600 yards (2). The plan of the Town in the time of Queen Elizabeth I when there were only 400 households (3) shows the 12th-century moat, which, presumably, was initially a defensive measure, but which remained as the western perimeter of the town to the end of the Georgian period when the inhabitants numbered about 6,000 exclusive of visitors.

Why had there been no extension further uphill across the Common towards Falsgrave? Or to the South Cliff over the Valley stream? The answer is simple. There was no organised water supply for the higher ground until 1845, and it is axiomatic that there can be no development if there is no adequate water supply. In that year, the steam water pump arrived to lift water to an organised distribution system, and, in stages, solved the water problem. Then, and then only, did the expansion of Scarborough begin.

The population figures for Scarborough, at 20-year intervals, are significant:-

Year	People	Percentage increase over previous figure
1801	6,409	-
1821	8,188	27.7
1841	9,503	16.06
1845	Pumping from Cayton Bay springs began	
1861	17,284	81.85
1881	26,238	51.4

These figures might seem conclusive; but there are many people, probably a very large majority, who are not 'water-conscious' and who believe that the railway, which also arrived in 1845, was the sole benefactor to Scarborough. A study of the water supply to the town through the centuries, the difficulties which arose, and the measures taken to bring the inhabitants an adequate supply, will help to assess the relative parts played by the advent of the steam pump and the arrival of the railway.

THE STORY OF THE WATER SUPPLY

Today we have an excellent water supply. It is curious, but so very true, that nobody bothers to ponder where the water comes from, or how it arrives at the tap; the only time that people become aware of water is when something goes wrong with the supply; or, of course, when the Water Rate Demand focuses the attention. So it has been throughout the early history of Scarborough ..... in fact up to the 19th century; the records of these earlier days seldom mention a matter which was taken for granted. There are, however, recorded complaints which presumably represent peak periods of crisis; it is from the complaints that the story of the early water supply can be reconstructed.

How much water was required in the earlier centuries? And where did it come from?

To put the matter in proper perspective, and for comparison, the water requirement by a community at the present time is calculated on the basis of 45 gallons per person per day; an amount which allows for all those things that are taken for granted, baths, showers, water closets, house cleaning, laundry, the fluid intake of the individual, and the requirements of cooking; it also allows, except in times of drought, for car washing and garden watering. In the Scarborough of today, the daily requirement is 3 million gallons and more, of course, during the Season.

It is not an irrelevance to note that in AD 97, the water supply to the ancient city of Rome, translated into our British units, was also at the rate of 45 gallons per person per day (4). It is true that the majority of the citizens of Rome did not receive such a generous supply, because it was not considered unworthy for the wealthy to steal large quantities of water, either by surreptitious tapping of the mains, or by bribery of some dishonest official to deviate a supply; the fact, however, remains that the water supply was at the same proportional rate as we have in Scarborough today. This comment underlines one of the seldom-mentioned consequences of the fall of the Roman Empire; for, during the centuries we are at the moment considering, the contrast is in every way extreme; the practice of bathing had vanished, and the habits of cleanliness had deteriorated to a very low level; there was no water laid on to any house nor to any other building; no domestic baths, no water closets, personal hygiene was somewhat sketchy ..... the free use of powder on the one hand, and plenty of perfume on the other, served till towards the end of the 18th century. It is recorded that Queen Elizabeth I insisted on a tubbing every two or three months but that this was regarded as a personal idiosyncrasy which need not be followed by her courtiers! A century later, Pepys was writing in his Diary under the date 21st February 1665 - 'My wife busy in going with her woman to a hot house to bathe herself after her being so long within doors in the dirt, so that she now pretends to a resolution of being hereafter very clean. How long it will hold I can guess.' This was Pepys' opinion of the avant-garde idea of raising the level of cleanliness. A hundred years later still, 1765, a Dr Knyveton (5) wrote in his Diary under the date September 16th - 'Must hasten to dress in my new plum coloured suit. I have even, in honour of the occasion, taken a bath, though it be this treacherous season of the year and I took one as recently as 6th June'. Apparently June to Sept-

ember seems to have been the 'treacherous season'. Dr Knyveton was not associated with Scarborough; but this comment shows the habits of respectable people, the sort of people who in 1765 came to Scarborough at the height of the Scarborough Spaw-Water Drinking Season.

Apart from cleanliness, or otherwise, there was as always the human need for fluid intake; the word 'fluid' is used advisedly; because neat water was a beverage with which our medieval ancestors were only slightly acquainted. Beverages, through the ages, had been mead and ale; from the mid-17th century, tea (which was at first brewed and kept in casks like ale!), chocolate, and a little later coffee; for those who could afford it, imported wine, and, for those in touch with the countryside, milk. So the household needs for water, such as they were, could be met, at least to the middle of the 18th century, by the use of surface water wells, collected rainwater, and, after the Franciscans had come, a certain amount of spring water.

In the 12th century, two wells for public use are specifically mentioned; the Borough Well, at the east end of St Sepulchre Street, and a deep-draw well 'behind the house called Paradise' (6). The site of the Paradise well has not been located but like 'the house called Paradise' itself probably lies under the Graham Sea Training School buildings. This Paradise well was noted for the clarity of its water (7); like the Castle Top water, it is reported to have weighed one ounce less per gallon than the water from other wells ..... which shows how much filth there was in the water from other wells. The clear water from the Paradise well was presumably due to the fact that the well penetrated the thinned-out layer of clay and reached the water-laden strata, which provided the spring water, and later the wells, at the top of the Castle Rock; the well water was, in fact, virtually spring water. The appreciation, at such an early date, of the purity of this water in contrast to that of the other Town wells, is the clue to the subsequent dependence of the town on spring water; for when, in due course, the inhabitants had the opportunity of using a supply brought into the town, the contrast with the available well water was such that the spring water became the vital factor in the life of the town.

As the historians Hinderwell, Baker, and Rowntree recorded, the supply of spring water to Scarborough was initially brought in by the Franciscans at the beginning of the 14th century. It should be noted that the Franciscan set-up remained unaltered in principle for six centuries, and, though certain modifications were introduced from time to time designed to increase the flow of water to the town, the original conduits, or wells and pumps remained.

The Franciscans came in 1239; they were homely men who would share the life of the people and would get their water from the Borough Well. They attracted sincere attention by preaching in the streets; but their methods and their popular appeal disturbed the Cistercian monks at St Mary's; so their stay was brief; for the Cistercians, showing a remarkable degree of Christian love, had them turned out of Scarborough. They retired to Hatterboard.

Twenty-eight years later, 1267, the Franciscans returned, this time with support from the Church hierarchy, and so managed to thwart a second Cistercian attempt to displace them. Then, having been granted land in the area still called Friarage, they got down to the slow business of building; they would

still be using the water from the Borough Well, which was just beyond the south-east corner of their newly acquired property. Fifteen years later, 1283, they appear to have found the well water unsatisfactory; and so Robert of Scarborough, Dean of York, negotiated with the burgesses, for a spring in what we now call Springhill, and to bring the water at his own expense through a channel for the use of the Friars and the burgesses. Owing to reasons financial and otherwise, the channel was not constructed until 1319 (8). The water was delivered to a well situated just outside the Franciscan property at the west end of St Sepulchre Street at its junction with Friargate (as it is now called); this became known as the 'Middle Conduit'. The water was also passed on to the site of the Borough Well at the other end of St Sepulchre Street where the Butter Cross still stands; this well became known as the 'Low Conduit'. There was also a well called the 'Great' or 'Upper Conduit' which may have originated at this time, or twenty years later; there is no evidence on the point. Twenty years later, 1339, the Franciscans, now firmly installed with extensive buildings, had apparently found the sharing of water with the burgesses at the Middle Conduit gave them an inadequate supply; they had negotiated for another spring at Springhill and the right to bring it down to their Convent for their own exclusive use; this was constructed in 1339. There were now two supplies from Springhill; the new one to the Franciscan Convent and the original one for the burgesses only. It may be that the Great Conduit was set up at this stage (9).

Incidentally the word 'conduit' was used to denote both the water channel and also its ultimate destination, a well/pump. The word was spelt 'cunditt' or 'conditt' in the earlier versions and 'conduit' later; but according to the Oxford English Dictionary, it is still pronounced 'conditt'.

From this point and for the next four and a half centuries, the story of the water supply has to be built up from the complaints that have been recorded.

After the Franciscans got their own water supply and the townspeople had a conduit to themselves, there is no complaint for 165 years; a contentment which was, however, more apparent than real. The Black Death, which struck in 1349, and the subsequent recurrences over the next five decades, carried off more than 50 per cent of the population; so it follows that the town did not, for quite a while, suffer from a shortage of water but from a shortage of inhabitants. Gradually in the natural order of things, over a period of a further three generations, the population had more than replaced itself, and water shortage became evident, because in 1485 it is stated (10) that there was an inadequate supply of water to the town ..... a shortage which was not due to any change in the people's habits nor in their industries, but to the increasing density of the population. There is no record, however, as to what was done to remedy the deficiency; yet something must have been done; for there is no further mention of water shortage until two and a half centuries later. It is possible to deduce the remedy. In the Town Hall files there is a document (11) dated 1623, stating in medieval English that a Christopher Gilson gave money 'to maintain and uphold the conduit water to be brought and conveyed from the conduit head through the lead pipe into the usual place called the Great Conduit'. It should be noted, through the lead pipe, not a lead pipe; clearly the lead pipe was in existence at that time. A hundred years earlier another statement (12) has been made that 'Scarborough continued as it had been for centuries'

this statement referred to a period shortly after the 1485 complaint. It is reasonable therefore to assume that the 'something' which was done to remedy the shortage was the substitution of a lead pipe (13) for the stone-built Conduit.

A short archaeological digression will clarify the benefit that would be derived from the use of the lead pipe. In 1932, the Corporation was developing the area on, and beyond, the north side of Market Way; the work was surveyed and superintended by Mr Poole, ARICS. During the excavation a stone-built culvert was unearthed which is best described in Mr Poole's words (14).

> 'In 1932, when the block of shops and houses in Market Way were being built, I saw and examined a stone-built culvert that had been exposed. Being out of the ordinary the attention of a Mr Smith ('Advertiser Smith'(15)) was called to it; he had no hesitation in saying it was a water conduit, probably Franciscan.
>
> 'The conduit exposed was roughly 30 to 40 feet long, running parallel to the north wall of the Market Hall in the direction of the Franciscan enclave to the point 80 to 90 feet north of the site of the Middle Conduit. It was about 2 feet below the surface. It was fully enclosed; the inside would be 10 to 11 inches square; the bottom, sides and top formed of roughly hewn stone slabs 15 to 16 inches square and about 2 inches thick. There did not appear to be any jointing material and one can only assume that it would be sealed with puddled clay. It was quite dry and clean inside indicating that it was used to convey water rather than for drainage or sewage'.

Stone-built aqueducts, particularly those jointed with puddled clay, tend to leak badly either from the washing out of clay, or from distortion by bush and tree roots; it is suggested by Water Engineers that not more than 30 per cent of the water which started down the conduit from a point over a mile inland would arrive at its destination. This leakage was so disturbing to the townsfolk that it became usual for citizens, who were able to do so, to leave bequests in their wills for the repair and upkeep of the conduit (16). Lead pipe can be hammered to make secure and watertight joints, and further, the pipe is less liable to fracture. There is some evidence that where possible, pipes were laid within a pre-existing culvert (17); thus further protecting the pipe from distortion. The substitution of the lead pipe for the stone-built channel would more than treble the supply of spring water to the town from the selfsame spring that had been in use for the previous two centuries. This procedure seems to have been adequate for the most part of three centuries.

It should be remembered that the water supply was, in the main, still as the Franciscans had set it up; three Town wells and pumps, from which the spring water had to be drawn and carried away in buckets; a supply eked out with collected rainwater; for horse and cattle and the domestic chores water from the surface water wells; at a later stage water carried from the Mill Beck in the Valley (18) and from Peasholm Beck. This situation seems to have been reasonable whilst the town was confined to the area bounded by the moat. In the later Georgian period, the town was being built out as far as the 'new road' (Vernon Road) with, a little later (1832) the spur of the Crescent and the line of Brunswick Terrace up to the main road.

It should also be remembered that apart from the increased number of houses and residents, there were arriving visitors for the summer months during the Spaw-Water Drinking Seasons of the late 17th century and of the 18th century ..... the visitors to the number of a few hundreds during the Season; but from the earliest years of the 19th century, the boom of the sea-bathing and Social Seasons attracted several thousands during the Season.

In addition to all this, the personal habits of the people had changed markedly from those of Mr Pepys and Dr Knyveton's days. There were now, in the bedrooms, the large ewer of water with its large basin standing on a washstand, usually marble-topped, with soap dish, slop pail, and the rest of the bedroom crockery, in ornate matching pattern; every morning a large can of hot water; and somewhere in the background, the portable hip bath which was being used with varying degrees of frequency. All this required water and more water; for this the murky well water was not acceptable; the rainwater would soon be used up; so it was the spring water which was needed in ever increasing amounts.

The situation was such that in 1781 the Corporation presented a petition to Parliament for an Act 'for general purposes including a supply of water to the Town' (19). Unfortunately there is no record available of the detailed requests about the water supply, nor whether an Act materialised, nor whether any changes were made to increase the water supply. Whatever happened was not effective for very long: twenty years later there was further outcry; it was reported that 'scenes of disorder, contention, turmoil, trouble and often fights occurred when the people were waiting for what they called their turns to procure their water supply' (20).

The changing habits of hygiene caused visitors to find Scarborough increasingly inadequate ..... an inadequacy based on the constant shortage of spring water. It is not surprising that in 1803, Mr Hutton, a touring visitor, wrote in his account of Scarborough (21),

> 'Water for family use does not abound. This is one of the first requisites of our existence. There are two miserable springs in the street: but they afford in a double sense a dirty supply. Thus it appears that the best and the worst of water is at Scarborough; the first from two excellent springs which bear the name of Spaw; and the other are two dirty wells in the street from which is drawn a scanty supply with a string and bucket'.

Apparently Mr Hutton did not stay long enough to discover the third well; nor can he have sampled the brown-stained Epsom-salts solution, which he describes as the 'excellent springs called Spaw'. Be that as it may, his words and his meaning are eloquent.

A few months earlier in October 1802, Lord Mulgrave had written (22), 'The Town of Scarborough occasionally suffers inconvenience from a scarcity of water'. He wrote thus to the Corporation offering £500 for the construction of a reservoir in a suitable place. Two months later the Duke of Rutland also offered £500 'towards intended plans for supplying the Town with water or such other improvements as the Corporation shall think necessary'. The fact that both these noble gentlemen were candidates for the Parliamentary seat did not disturb the Corporation, which accepted both offers and set up a committee 'for fixing upon a

proper place for a reservoir of water, also for erecting and building the same'. This committee made repeated efforts to improve the water supply; but it should be noted that the reservoir they were charged to provide was not, in fact, built until 25 years later. They appointed Mr Robert King, an eminent surveyor, to advise and to help with the search for water (23). Several springs were brought into use; the original Conduit Head which had consisted for centuries of a single spring and collecting tank or well, had become the Conduit House Close in which there were three collecting wells set at different levels. There is inferential evidence that the Conduit House Close was the area now known as Falsgrave Park, and that the Conduit Head was the well at the north-east corner of the Park (24).

In 1808, at Mr King's suggestion, water from Stoney Haggs spring was leased from Mr Joseph Dennison at five guineas per annum; the water 'was carried a great distance through Pot pipes costing 9d per yard'. (25)

In 1818 the Corporation required the Falsgrave community to turn the spring water, running into their own well, into the Scarborough main (26. Three years later (1821) the lead pipe from the Conduit House Close was replaced by a slightly larger cast iron pipe laid along a new line 'as shown on the plan' (27). Unfortunately the said plan no longer exists; it would have been interesting to have known the exact line.

These improvements were not effective for very long: for in 1826 there is another complaint in the form of a letter by Richard Stickney, an apprentice, writing to his home (28):

> 'You have most likely plenty of water at Beverley, but at Scarborough the want of it has been severely felt, persons having to wait one, two, or three hours or more before they could get any; and though they have lately found a new spring and have been at a great expense in bringing the water to the Town, yet the supply still continues to be very deficient.'

The scarcity of water and the frequent delays led to the practice of leaving empty buckets numbered with chalk whilst the owners went about their business and returned later to take their turns (29). It may have been that cheating in the order of turns provoked the brawls and fighting previously mentioned. The delays at the pumps, mentioned by the apprentice, indicate the mechanics of the public wells; they were fed by the continuous flow from the conduits; when many people drew out bucketsful in rapid succession there would come the moment when the level of water fell below that at which the pumps could lift the water and at which the buckets would not fill; so there would have to be a considerable pause for the well to fill up again from the steadily running pipe.

The further comment by the apprentice, that a new spring had recently been found, was almost certainly referring to the work of William Smith, the noted geologist (30), who was agent for the Hackness Estate of Sir John Johnstone, and who had been asked, in the early 1820s, by the Commissioners to advise on the water supply to the town. He recommended that a reservoir should be dug in the Workhouse Yard, now known as Chapman's Yard; this reservoir he described in a letter to his patron as 'the largest covered receptacle in England', and stated that it had a capacity, in our terms, of 200,000 gallons (31). Its purpose was to prevent waste; the spring ran continuously to the three public wells; so, when

the wells were full, but no-one drawing water, as at night, the water ran to waste; but Smith deviated the conduit to his reservoir and stop-tapped the outflow pipes, so that water could be cut off when desired and allowed to collect in his reservoir for use during the daytime ..... an economy of the available water and a better supply to the people.

He made another discovery (32). He had found, by accident, that the strata at Spring Hill could be made to store water. He dug a cavity into the foot of an almost perpendicular part of the terrain and where there were no other natural outlets of spring water in a considerable surrounding area. He sealed the top of the cavity but with a cast iron exit pipe, on which there was a control tap; the water was forced to accumulate even more in the strata than heretofore. From various tests he calculated that the accumulation during the winter months would be about 700,000 gallons. He connected his exit pipe to the town main and let the accumulated water down in controlled amounts during the summer season when the springs were usually sluggish. Over the summer season of some 15 weeks, this stored water would add 6,500 gallons per day, a considerable increase to a supply from the springs of probably not more than 25,000 gallons per day for a population of about 1200 households. This procedure seems to have been the forerunner of the present-day much-discussed principle of underground storage of water.

All this must have been a help, but not for long ..... the authorities were fighting a losing battle; the demand was always several steps ahead of the supply.

Ten years later (1836) it was proposed to form a private company to bring more water to the town (33). There is no record as to what exactly was proposed; but presumably the suggestions were inadequate because the proposal received no support. Not long afterwards, in the early 1840s,

> 'the Town was so ill supplied with waterthat on some occasions it was almost impossible to get enough to drink. At that time the then Corporation in its wisdom, or otherwise, chose to transfer the powers it then had to a Company that was got up for supplying the Town with water' (34).

The company referred to was proposed by Mr J. Woodall and had concrete proposals to put a Bill before Parliament to bring water to the town from springs at Flixton, Folkton, Staxton and Stoney Haggs; a proposal to which a last-minute addition was made ..... the water-driven corn mill at Cayton Bay, having come on the market, the Company proposed to buy out the mill and use the plentiful supply of spring water from the Cayton cliffs. The proposed Company had the backing of the Commissioners for Improvement. There was divided authority in the town - the Corporation and the Commissioners: the latter had been mandated to improve the water supply in 1802 and had had the support of the Corporation in these matters since that time. The proposal that private enterprise should take over the water supply did not appeal to some of the councillors; but in February 1844 the majority of the Council went along with the Commissioners to support the Company's Bill to Parliament, chiefly because the Corporation had not the resources to carry out such a project itself. Doubts as to the wisdom of this transfer to private enterprise grew and were suddenly intensified when it was learned that Hull Corporation had secured a special Parliamentary Act to borrow money for a similar

purpose (35); there was also a resentment that the profits from such an undertaking would go into the pockets of the shareholders of the private company. The Corporation then withdrew their support to the company's Bill and proposed to apply to Parliament for an Act to authorise the Council to construct works and to raise funds for the purpose. They further proposed to employ a specialist engineer to prepare plans and estimates

> 'for constructing additional waterworks for bringing an ample supply of water to the Town and supplying the inhabitants therewith at their respective dwellings as well as at the present conduits.'

The records do not name the consultant nor what his plan was; but the terms of the Council Minutes suggest an imitative scheme based on the company's published scheme. Anyway the Corporation Bill, if it was in fact presented, got nowhere; but the Corporation intensified their objections to the company's Bill. The company's Bill backed by the Commissioners, did get through Parliament with two modifications achieved by the Corporation. The first concerned the charges proposed by the company for connecting supplies and the water rate for usage (36); the amendment limited these charges to those recommended by the Board of Trade previously worked out for water companies in other towns. Further, the principle of selling and purchasing water caused the Corporation to press for relief for those of its citizens who could not, or would not, pay the company's charges; they succeeded in a second amendment to have a clause (37) inserted requiring the company to supply water free of charge to the reservoir (Smith's reservoir in Chapman's Yard) and the three Town conduits between the hours of 6 a.m. and 9 p.m.; the water to be taken away in buckets, used solely for domestic purposes, and not to be sold. The Scarborough Water Company Act received Royal Assent on June 30th 1845.

The general purpose of the company's activities was to pump water from the low level of Cayton Bay springs to a high point and gravitate it to the town through cast iron pipes. The consultant engineer to the Company was Mr Wickstead, who installed on the site of the water mill (47 feet OD) one of the improved high-lift Trevithick steam water pumps, with a lifting capacity of 400,000 gallons per day. The water was lifted 188 feet to a reservoir of one million gallon capacity (235 feet OD) at the Seacliff Road/Filey Road corner; the water main was laid along the line of the main road (38). All this happened between July 1st and November, 1845; for there is evidence that the distribution pipes were being laid on 25th November in 18 streets east of Queen Street (39). This extremely rapid progress was a feature of Victorian endeavour, and was due to the fact that our Victorian forebears were not as hampered in their preparations as we are today. Any project today which requires an Act of Parliament is subject to delays all along the line; awaiting Parliamentary time to get an enabling Act; the submitting of detailed plans to appropriate Ministry with, probably, argument about some of the details; the submitting of cost in detail to obtain loan sanction, with probable further delay; and lastly until the final agreement, and permission to obtain loans, are obtained, no tender for any equipment may be invited, with further delay in the time of delivery of the said equipment. Our ancestors were so confident that all would go smoothly that they apparently jumped the gun by ordering, and in fact laying in, the required materials before an enabling Act was passed. This happened in the case of the York to Scarborough Railway; for the

chairman of the Railway announced to a meeting of shareholders that he had already obtained the rails to cover the distance from York to Scarborough ..... he was speaking a year before the Railway got its Act through Parliament (40)! So it must have been with the Water Company; for not otherwise could such phenomenal progress have been made.

The demand for water increased so rapidly that eight years later (1853), a more powerful engine, with lifting capacity of 720,000 gallons per day, was installed; in consequence of this greater supply, a larger reservoir was required; so an open reservoir of $4\frac{1}{2}$ million gallons capacity was built at Osgodby Top in 1855, and the Seacliff Road reservoir abandoned (41).

The virtue of the Water Company's supply was not merely the volume of water which was available; but also the fact that the company was empowered to sell the water to those who agreed to pay the stipulated fees and rates; in return for which a supply was led from the mains into the premises of the burgesses, thereby making available an unlimited supply of water without the physical efforts previously required; and the opportunity to install fixed baths, water closets, taps over sinks and taps over the 'copper' in the wash house. Even more important, from the point of view of the town as a whole, was the availability of water led to a building site; so that building could now take place, and the subsequent buildings be supplied with water, beyond the restrictive perimeter necessitated previously by the need to carry water from the inadequately supplied fixed water points of the town. Development now began on the South Cliff and on the wide spaces westward of the borough and eastward of Falsgrave.

The background resentment of the Corporation that a vital commodity, water, was in the hands of the profit-making private company manifested itself once again when, in 1863, the company sought an amending Act to sanction increasing their capital and borrowing a further sum of money for extending and maintaining its services (42). A resolution in Council that the Water Company should be bought out was carried. In order to sustain a valid objection to the company's Bill and provide grounds for the purchase of the company, it would have been necessary to prove that the company had failed to provide a proper supply, that the water was in some way bad, or that the cost was too high. As most of the Councillors had personal recollections of the miserable conditions before the company took over in 1845, the first two counts could not in honesty be put forward ..... the only objection raised therefore was in the matter of cost. The company proposed negotiation with the Corporation on this matter; and an agreement was reached for reduction of the Water Rate to the consumers, the charges for certain facilities, and the rate of interest to the shareholders; the Corporation on its part agreed to pay 6d per 1,000 gallons for that water to the three public wells which, under the 1845 Act, the company had previously supplied free of charge. So no objection to the company's Bill was raised in Parliament and, for the moment, there was somewhat guarded satisfaction.

The ever increasing demand for water was always threatening to overtake the supply. The chairman of the Water Company (speaking retrospectively in 1877) said that 'at the outset (1845) neither the inhabitants nor anyone else imagined that more than 30,000 gallons per day would be required' (43). In 1867, the maximal summer rate of consumption was 544,980 gallons per day, rising in 1872

to 675,000 gallons per day - whilst the maximal supply under good conditions from the existing steam pump was 720,000 gallons per day and the summer season did not usually provide the good conditions of the spring supply.

Control and economy of the use of water was attempted. The company cut off the water supply to the three public conduits from Saturday night to Monday morning (44): this probably did produce a certain saving, because of the abuses of the privilege of free water: but it also did cause hardship to the genuine poor who could not afford to have water laid on in their houses; they were obliged to store what water they might need over the weekend; for citizens with water laid on could not, under penalty for breach of contract, allow anyone other than their own households to have water.

In 1872, a new well 100 feet deep was sunk between Osgodby and Cayton, tapping the same water-bearing strata from which the Cayton springs were derived (45); this well with its own steam water pump could, under good conditions, lift 600,000 gallons per day to Osgodby Top reservoir ..... the housing of the pump and well can still be seen on the Osgodby/Cayton road, a well preserved yellow brick building. This additional supply was of only temporary benefit for in 1876 the summer consumption rate had risen to 817,000 gallons per day. The chairman of the Water Company in 1877 addressing a general meeting of shareholders, after remarking that the demand had reached the 800,000 mark, is reported to have said,

> 'In a particularly dry season after pumping nearly every drop of water at Cayton, they had only 10 to 12 hours supply to spare; so that if accidents (to the mains or to the engines) or any serious fire in the town had occurred they would have been without water'.

The meeting moved 'that the time has arrived when it is necessary that some scheme for maintaining and storing a larger supply of water for the Town of Scarborough be adopted' (46).

The company had in readiness a scheme prepared by Mr Filliter, consulting engineer, to bring water from the Harwood Dale Moor, 8 miles away at a cost of £80,000 (47). The shareholders agreed that a Bill should be laid before Parliament forthwith to obtain loan sanction for carrying out this scheme.

This situation brought the tussle with the Corporation to a climax. There had been a national tendency to revert to municipal control as shown by the report of a Royal Commission appointed in 1869 to enquire into water supplies (48): so when the precarious situation of the Scarborough water supply was suddenly made known to the public and the scheme to bring in more water at a cost of £80,000 was proposed, the majority of the Council agreed that on economic grounds immediate action should be taken to promote a Bill for the compulsory purchase of the Water Company; for otherwise costly new works, envisaged by the company, would be started, and in consequence added to the price for the purchase of the Water Company(49). There was some disquiet that the public had been kept in the dark as to what the Council proposed to do when they had acquired the company (50). A public meeting of ratepayers was therefore called at which there were some dissenting voices and a demand for a referendum (51). This was held in December 1877, and resulted in an approximately 5 to 2 majority of those who recorded a vote in favour of the Bill for compulsory purchase of the Water Company being

laid before Parliament (52). As a result of this expression of public opinion, the Water Company agreed to terms of sale and not to oppose the Corporation Bill in Parliament (53).

There were now two Bills before Parliament: (a) the Water Company Bill to raise £80,000 to carry out the extensive works to bring in water from the Harwood Dale Moor area - this Bill was not opposed by the Corporation and received Royal Assent on May 27th 1878; (b) the Corporation Bill to purchase the Water Company with its existing and projected works - this Bill was not opposed by the Water Company and received Royal Assent on June 17th 1878.

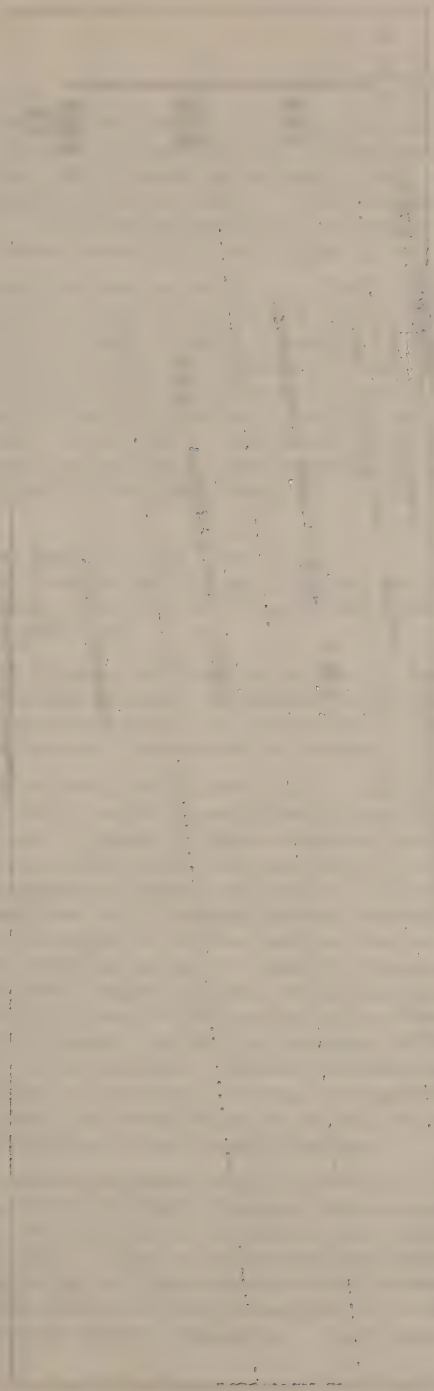
The Corporation now had the Company and Mr Filliter's scheme to improve the water supply on its hands. There had been warnings in the public press, even before the Act was presented to Parliament, that Mr Filliter's scheme should not be taken for granted, that other schemes should be investigated, and that other engineering advice should be invited (54). The Corporation requested Mr Filliter to report as to making Cayton Bay spring sufficient for ten years to come, by preventing waste at the pumping station; he was also asked as to the treatment of the peaty colour of the water from Jugger Howe, and the possibility of using water from Keld Runnels (55).

Mr Filliter reported (a) that at the moment the yield of water from Cayton Bay spring and the Osgodby well during the summer months was just sufficient to meet the peak seasonal demand, but provided no margin for possible engine repair nor for other unforeseen circumstances; moreover, the Cayton Bay springs were liable to diminution due to drought, to land slips of the cliff, and to use of water drawn off by private wells. He recommended that a new reservoir of 15 million gallon capacity should be constructed near, and at the same level as, the existing Osgodby Top reservoir; such a reservoir would hold all the surplus water pumped up during the off-season months and would maintain maximal supply for the next ten years. (b) The peaty water from the Jugger Howe source could be treated by one of two chemical methods at the probable cost of £5000 per year (56) (c) The maximal output of water from Keld Runnels was only 150,000 gallons per day, an amount which was much reduced in dry weather, and in any case, would need a booster pump, as the spring was 30 feet lower than Osgodby Top reservoir.

So the choice before the Corporation lay between the construction of an additional large reservoir near Osgodby Top with relief of the water problem for a possible ten years; or the adoption of the Jugger Howe scheme, with or without treatment of its peaty discoloration, but with a continuing supply of, at least, one million gallons of water per day.

An independent engineer, Mr Hawksley, C.E., was invited to examine and report on these schemes and in particular on the quality of water obtained at Jugger Howe (57).

Mr Hawksley reported in favour of the Jugger Howe scheme; but called attention to the results of a series of analyses of the water which showed the presence of peaty acids in significant amounts. Members of the Council became concerned that this water could (or, as some said, would) produce lead poisoning in those who used it.



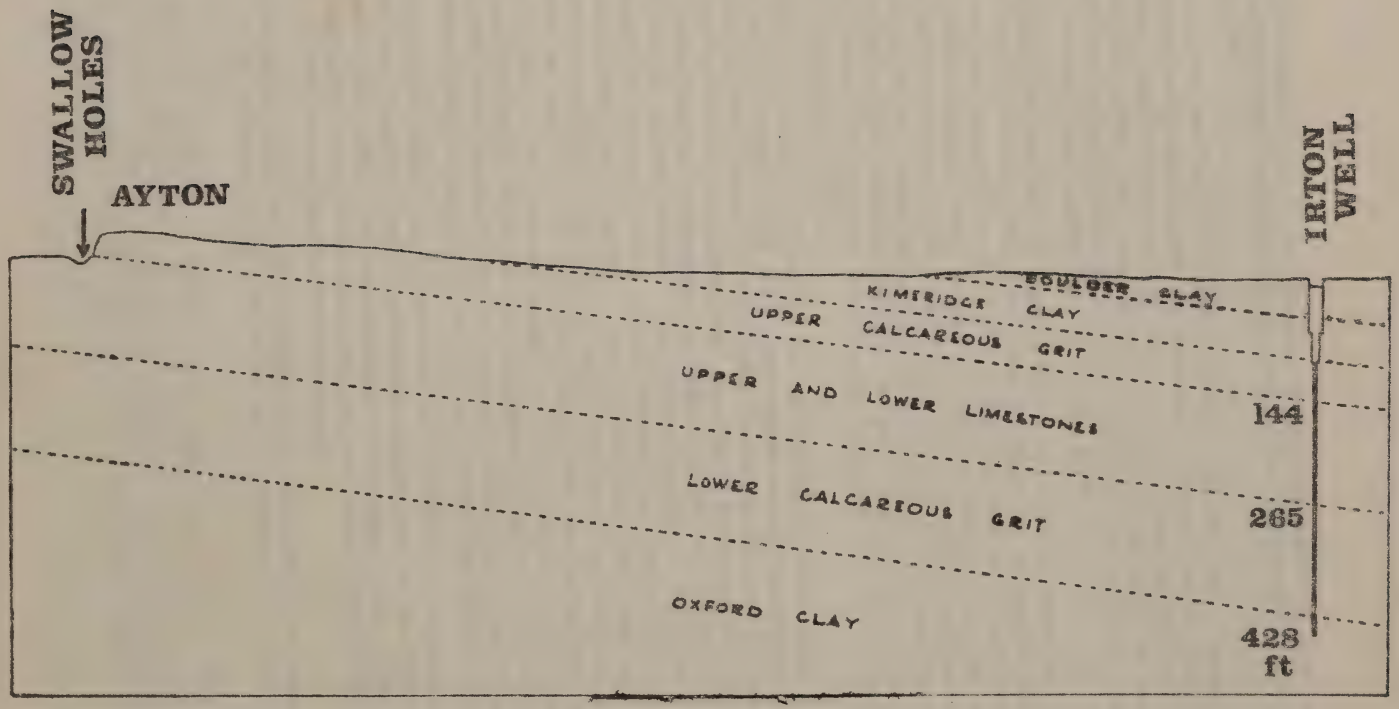


Fig. 1 Slope of strata from Ayton Swallow Hole to Irton borehole

Mr Filliter was now requested to survey other areas for possible sources of water (58). He was attracted to some fields near Irton Village in Lord Londesbrough's estate, which tended to be marshy, and, at times, flooded without any climatic or other obvious reasons. He recommended sinking a trial bore hole in the area (59). In December 1879 this was done; and, when a depth of 100 feet was reached, water gushed up at an estimated rate of 400,000 gallons per day.

The Corporation determined not to carry out the Jugger Howe scheme, but to accept Mr Filliter's plan to sink the bore hole through the full depth of the water-bearing strata and to build a pumping station on the site with engines capable of raising one million gallons of water per day (60). A further recommendation was to build two new reservoirs on Oliver's Mount; an open one at the top at 505 feet OD and the other a closed one, on the western side of the Mount at a lower level 338 feet OD. The former was to supply the South Cliff and all the highest parts of the town, and the latter to supply the development that was rapidly moving out of Falsgrave along the Seamer Road. This scheme was to cost £20,000.

The scheme went through; the bore hole was sunk to a depth of 428 feet; two steam pumps capable of lifting 1,250,000 gallons of water per day were installed; the two reservoirs on Oliver's Mount were built; and the station began to function in 1884 (61).

A point of interest is that the plentiful supply of water in the strata on which the Cayton Bay springs, the Osgodby well, and the Irton bore hole drew was the result of two accidents ..... the first, a man-made accident innocently contrived, and the second, an accident of nature.

The man-made accident happened at the end of the 17th century, when a water mill was being built on the River Derwent, just upstream of the East Ayton/West Ayton road bridge. The mill, much renovated and without its water wheel, can still be seen just upstream of the road bridge; the Hewley coat of arms (62) is still visible high up on one of the walls. To deepen the water in the river so that he could lead off a worthwhile mill-stream, the miller built a weir across the river: as it happened, on the bank on the east side of the river just above the weir, there were two areas of fissured limestone uncovered by turf; previously these areas were (except in times of flood) above the water level of the stream. When the water level rose as the result of the weir, these bare areas were submerged, the water poured through the crevices of the limestone; and so the 'Swallow Holes' were created. Recent tests have shown that at peak times 4,000,000 gallons of water per day pass through the 'Holes' and gravitate towards the bore hole area, at which point the water arrives some six hours later. A curious little accident, but a beneficial one.

Figure 1 shows diagrammatically the slope of the strata and also shows the superficial layer of clay which becomes increasingly thick in a southward direction ..... the water-bearing strata becoming, as it were, sandwiched between two thick layers of clay (63). This is a fitting introduction to the accident of nature. Millions of years ago the compression of the earth's crust resulted in the smooth gradients of the strata becoming disrupted ..... they were either rumpled abruptly upwards or infolded sharply downwards. Just south of Cayton Bay, there was a

downward kink of the superficial clay which thereby formed a barrier across the southward flow of water in the strata. Figure 2 shows diagrammatically this situation (64). The line of this kink, or fault, runs east to west from a point just south of Cayton Bay and lies roughly parallel to the Scarborough/Pickering road. Water is dammed up to the north of the fault and bursts out at the Cayton Bay springs, and at various points along the Pickering road, at each of which there is now sited a village. It is this water that is tapped by suitably placed bore holes.

The Corporation, then, had a bore hole functioning in 1884 producing 1,250,00 gallons of water per day, with two new reservoirs on Oliver's Mount, each of 1,500,000 gallons capacity; all this in addition to the one million gallons from Cayton Bay and Osgodby pumped into Osgodby Top reservoir which was of $4\frac{1}{2}$ million gallon capacity. This quantity of water seemed likely to be an ample supply for Scarborough Town for many decades; in point of fact, the only changes that were made during the next 44 years were directed to the quality of the water, not to the quantity. Incidentally, the Corporation made one economy; they cut off the supply of free water to Smith's reservoir and the three Town conduits ..... the conduits and the reservoir went into disuse and everybody had to pay for their water.

The first improvement came in 1892. Open reservoirs during the summer months tended to produce animal and vegetable impurities (algae and diatoms) which made the water unacceptable. Efforts had been made to deal with this problem by killing these growths with dilute copper sulphate solution (65) - a process which had only temporary benefit and which required the reservoir to be out of use for several days whilst the solution was acting and for the subsequent cleaning out. So in 1892 the top Oliver's Mount reservoir was covered over, thereby inhibiting the growth through exclusion of light and air (chlorination had not been developed at this time).

The next improvement came just before the First World War. There had been invented in Britain a process of rapid sand filtration of water to replace the slow percolation through banks of sand. The Corporation took advantage of this innovation, and in 1913 introduced 10 units of rapid filtration plant at the Irton Works (66).

When Scarborough had recovered from the effects of the 1914-1918 War, there developed another burst of prosperity with, inevitably, more water used and more water needed ..... the consumption during the peak period of demand rose from 1,640,000 gallons of water per day in 1920 to 2,440,303 gallons per day in 1928, almost half as much again (67).

The Water Sub-Committee, being aware of the trend, did not drift into the difficulties which had beset the authorities in 1845 and again in 1878, but acted in such good time that there was no hardship, nor alarm, in the town: in fact the general public was unaware of the need for the impending changes until they had been completed ..... the three or four line reports in the Council proceedings of the stages of the reconstruction of the water resources passed almost unnoticed and certainly without comment ..... the people had a sufficient water supply for their immediate needs, and, as usual, gave no further thought to the matter.

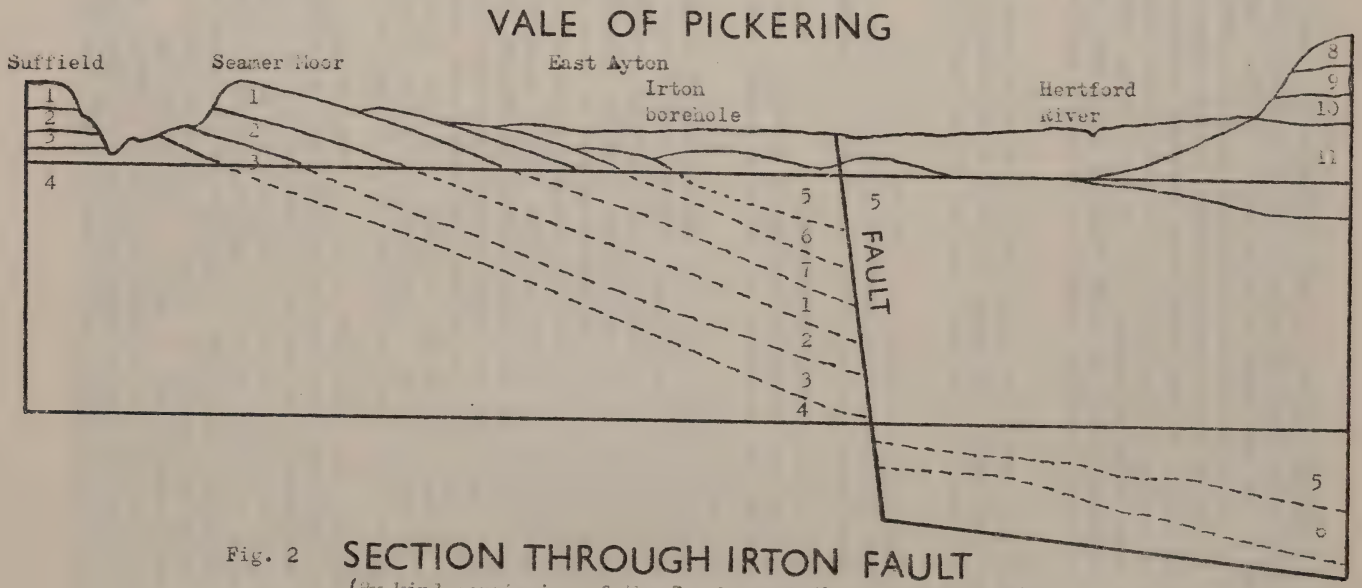
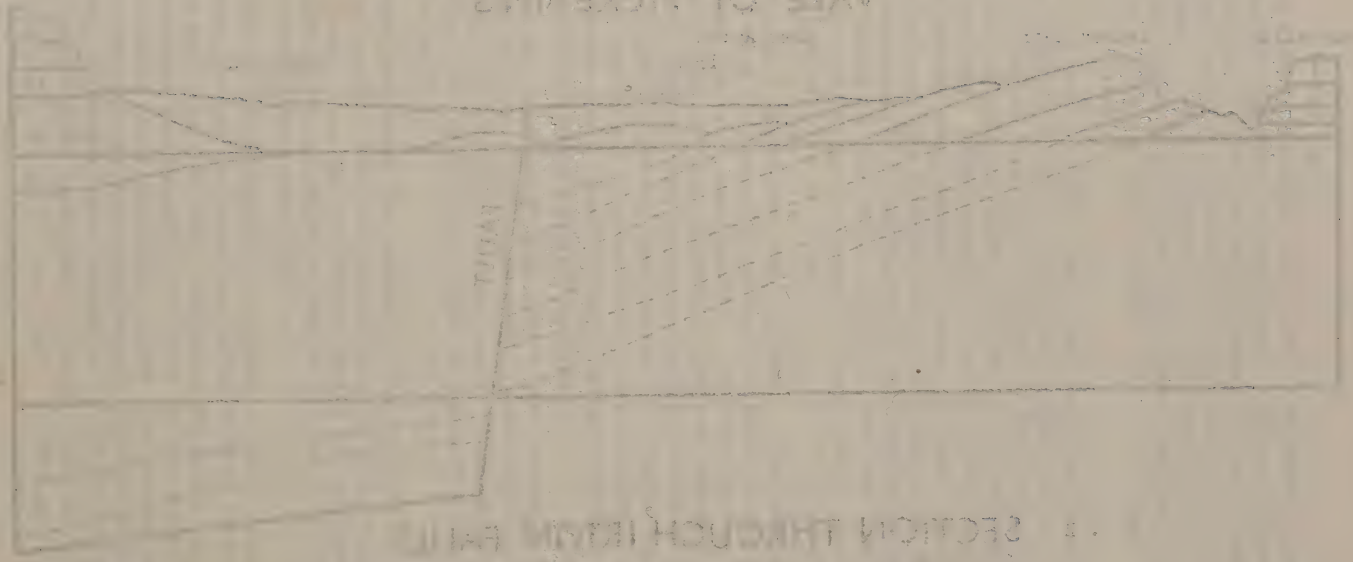


Fig. 2 **SECTION THROUGH IRTON FAULT**

(By kind permission of the Scarborough Water Undertaking)

1 Lower Calcareous Grit
2 Oxford Clay
3 Kellaways Rock
4 Upper Estuarine Series
5 Kimmeridge Clay
6 Upper Calcareous Grit
7 Upper and Lower Limestones
8 Chalk with flints
9 Chalk without flints
10 Red Chalk
11 Speeton Clay - Lower Cretaceous



The first indication of insufficiency of supply came in 1923, when the Water Sub-Committee had to request the Housing Sub-Committee not to proceed with the development of the higher parts of the Prospect Mount Estate because the existing reservoir would not adequately supply water to that height (68). The Chairman and the Water Engineer were charged to report on the water supply to the whole town: and in 1924 the expert opinion of Dr Lapworth was sought to advise on the whole problem. The following year (1925) Dr Lapworth reported that a new bore hole should be sunk adjacent to the existing one and a pumping station built thereon: a new reservoir at the top of Spring Hill (362 ft OD) should be constructed: the filtration plant should be extended: the Osgodby Top reservoir should be covered: and a chlorination plant installed (69).

The Council approved of this plan, and an application to the Ministry for loan sanction for £100,000 was also approved. The Council, however, reserved a decision as to the source of power and the type of pumps that were to be used: it was not until a year later (1926) that the decision was made to use electrical power to drive the pumps (70). The delay in making this decision came about because negotiations were in progress for the Corporation to buy out the Electricity Company which had its generating station in Seamer Road: if the negotiations were successful, then obviously, the necessary electricity could be generated in their own plant and the running of the pumping machinery at Irton would be much cheaper than if steam, gas, or petrol engines were used for the purpose. In addition to the electrically driven main pumps at Irton, a small electrically driven booster pump was installed at the lower Oliver's Mount reservoir ..... this would be cheaper in electricity consumption than direct pumping to the higher reservoir by the Irton pumps (71).

So the work was completed and the extension was opened on October 12th 1928 (72). It had cost £102,150 and had doubled the output from the Irton Station. The Chairman in his speech at the opening said,

> 'There was now ample water supply for many years' time, and the changes will immediately help the western and north western districts which have been increasingly difficult to supply from the lower Oliver's Mount reservoir'.

The only difficulty which persisted was that, when the River Derwent was disturbed by heavy rain and flood water, the water at the bore hole became unduly muddy. Four years later, therefore, (1932) new sedimentation tanks and extended filters were added.

However satisfactory the outlook may have seemed, the situation was completely altered when the government passed the Water Act 1945 which dealt with the regionalisation of the water supplies of Britain. It was to most people a surprising fact that the countryside, as a whole, was so poorly supplied with reliable sources of wholesome water: so many areas were dependent on springs which tended to slow down, or dry up, in the summer months: so many other areas depended on wells which became contaminated from the seepage from well manured fields: many properties had to use hand pumps to raise water to their cisterns: others channelled water through lead pipes and were in danger of chronic lead poisoning ..... there were exceptions, of course, but the picture as a whole was surprisingly bad.

The Water Act 1945, in simple terms, divided the country into areas each of which was centred on a place, or a point, on ample water supply, and that place, or point, was mandated to provide an adequate supply of wholesome water to every individual in its area. Scarborough was allotted an area of 300 square miles, extending north of Whitby to Hinderwell, 20 miles west of Whitby to Westerdale, westward of Scarborough to Snainton, and southwards to Gristhorpe. This area divided itself into northern and southern halves; the northern part had a water supply from the Esklets with a treatment station at Westerdale; a further supply from Wheeldale Gill and Wheeldale Beck with a treatment station at Wheeldale, pumping into Randymere reservoir, into which also ran springs from Hazelhead. This supply became increasingly inadequate during the summer months when the seasonal demand of the holiday centres was at its highest level. In the southern part, Scarborough Town supply was at this time (1945), as already shown, more than adequate; but its rural areas were not so fortunate.

The Scarborough territory was visited by an Inspector from the Ministry, Mr Vail, BSc, MICE, who in a report dated 1956 (73) recommended that the water supply of the northern sector of the area should be supplemented by water from the Irton bore hole, carried in a pipeline over 20 miles of moorland, with booster pumps at various points: a system that was likely to be expensive to maintain, and an extra drain on the underground reserves of water at Irton. Five years later (1961) Mr H. South, CEng, MICE, FIWE, MRSH, Water Engineer to Scarborough Corporation, put forward an alternative scheme for this northern sector ..... to abstract water from the River Esk at Ruswarp and to build a treatment and pumping station nearby. The Ministry accepted Mr South's plan and permission was granted to abstract 1½ million gallons of water per day from the river. This has been done and became functional in 1968 (74).

As regards the situation at Scarborough, it was quite clear that the existing pumps, which had by 1961 become inadequate for the town supply, could not lift enough water to supply in addition the rural areas of the southern sector; so once again the equipment at the Irton station had to be altered. Four powerful electrically driven pumps capable of lifting 6 million gallons of water per day were installed (75), and at the same time an 800,000 gallon sedimentation tank was built: the batteries of rapid sand filtration units were modernised with improved throughput. These alterations were completed by 1965 at a cost of £128,969. The amount of water available at Irton together with that from Cayton and Osgodby ..... 7 million gallons in all per day ..... seemed likely to meet the demand of an expanding Scarborough and its rural areas for several decades.

The advent of worthwhile industry, however, has somewhat altered the picture. Many industries require water, and lots of water at that: the first question asked by a prospective industrial developer is whether the required amount of water is available ..... for instance, in 1962, a large American firm was considering putting up a factory at Eastfield with a water requirement of 5 million gallons per day; as the Irton works were being reorganised at that time, the extra pumping could have been arranged and the water made available by the time the factory was ready; however, Common Market considerations, which had nothing to do with Scarborough, decided the firm to put their factory in Europe. Again in 1967, another industry asked for a supply of 750,000 gallons of water per day: it was available, and the factory is now functioning in Eastfield. It will be

realised that when an industry arrives, out of the blue, so to speak, requiring a large and unscheduled amount of water, this supply has to be provided from the surplus which the water undertaking had planned for the expanded needs of the area three or four decades hence: in other words, by supplying water to such an industry, the adequacy of future water supply is foreshortened. The Scarborough Water Undertaking, however, has not waited for any shortage to occur, but has set about providing extra water supplies from new sources. In 1971 a new bore hole was put down in Cayton Carr from which an extra 1½ million (or probably more) gallons of water per day is expected soon to be pumped into the Osgodby Top reservoir; and there are other water sources in prospect when the need arises.

The solving of the water problem was the beginning of the expansion of Scarborough. The difficult days are over: water is available, or will become available, to cover the needs of the town and its surrounding rural area, domestically, commercially, and industrially, for the foreseeable future (76).

EPILOGUE

(a) The first steam train ran into Scarborough on 7th July 1845. The railway brought no water, but did bring considerably more people than had previously come by road coaches. This influx of people would be coming to a town which was already acutely short of water; a town with three fixed water sources from which water had to be carried away in buckets; a town limited in its expansion by the distance the water could be carried; a town about whose inadequate water supply visitors complained. The influx of train-borne people would increase the difficulties, and increase the discomfort of residents and visitors alike, causing a crescendo pattern of complaint. If, therefore, the difficulty with the water supply as it was in July 1845 and as it had been for more than five decades, had persisted, the arrival of the railway, bringing more and more visitors, would have ruined the town as an acceptable resort.

(b) The improvement of the water supply through the agency of the steam water pump in 1845/46 would have stimulated expansion, even if the railway had not come to Scarborough. The rate of expansion would have been much slower, but would have restored Scarborough to its former attractiveness.

(c) The advent of the steam water pump plus the arrival of the railway permitted the very rapid expansion and prosperity which in fact occurred.

To summarise, the extra water supply without the railway would have provided comfortable conditions for residents and visitors and stimulated slow but steady expansion. The railway without the extra water supply would have worsened the already desperate conditions. The fortunate arrival of both at more or less the same time led to the phenomenal expansion already demonstrated.

(d) The rapid and continuous expansion due to the combined factors of good water supply and the railway very soon brought difficulties; the demand for water again threatening to exceed the supply. A catastrophe similar to that

which threatened the 1840s was averted eventually by drawing on the underground reserves of water which a freak of nature had provided, and which it is to be hoped will supply the needs of the town and its rural area for at least several decades.

It is to be hoped that efficient and economic methods of desalination of sea water will be developed before the threat of water shortage again disturbs Scarborough; in which case, Scarborough water supply will be secure to the end of time.

APPENDIX

ABBREVIATIONS

Baker — J. B. Baker: History of Scarbrough, 1882

Ency.Brit. — Encyclopaedia Britannica

E.N. — Scarborough Evening News

G. — Scarborough Gazette

Hinderwell — T. Hinderwell: History of Scarborough, 1811 Edition

Hutton — W. Hutton; The Scarborough Tour in 1803, 1804 (Library)

Library — Scarborough Room of the Reference Library Section of Scarborough Central Library

M. — Scarborough Mercury

Millhouse — William Millhouse, Asso.Mem. Inst.C.E., Water Engineer to Corporation Waterworks (1885 onwards): a paper entitled Scarborough Waterworks read in 1907 to the British Association of Waterworks Engineers (Library)

Richardson — Herbert Richardson, MInstCE: Scarborough Waterworks read in June 1927 (Library)

Rowntree — A. Rowntree: History of Scarborough, 1932

T.C.O.F. — Town Clerk's Office Files, Scarborough Town Hall: most of the references will be found in bundle D.10, Box 14, Cupboard C.

W.S.M. — Water Sub-Committee Minutes as passed by Council

Notes and References/

NOTES AND REFERENCES

(1) Chairman, Water Committee of Scarborough Borough Council, 1961-1966

(2) Hutton, p. 136

(3) 400 households, or approximately 2,000 persons, Scarborough Free Press, 21st Sept. 1910 (Library). For plan see Scarborough 966-1966, pl. 7.

(4) Ency.Brit. Frontinius AD 36 to 103; became Consul AD 75, and was appointed Governor of Britain, and as such led the Legions to subdue Welsh tribes. In AD 97 appointed 'Curator Aquarum', Superintendent of the Aqueducts, and wrote a history and description of the water supplies of Rome, including the laws relating to its use and maintenance. The details of the quantity of water supplied to the city found under the heading 'Aqueducts'.

(5) Yorkshire Post, 22nd June 1970 - a contribution from Mr Hugo Lemon, Arnside, Lancs.

(6) Baker, p. 125 and Hutton, p. 161 (Mr Paul's house was called Paradise)

(7) Hinderwell, p. 96 and Rowntree, pp. 269-70.

(8) There has been some confusion about the dates of the two conduits from Spring Hill. The story is clarified by reference to (a) Victoria History of the County of York, vol. 3, p. 275 (Library); Jeayes, Descriptions of Documents contained in the White Vellum Book of the Scarborough Corporation, 1914 (Library).

(a) 'In or before 1283 the burgesses granted to Robert of Scarborough, Dean of York, that he make, at his own expense, a conduit for the benefit of the Friars Minor and the Borough. The scheme had not been carried out when the Dean died in 1290: but he left to the Friars one hundred marks in his will for this purpose. It was not until 1319 that the Friars had licence to make the underground conduit from Gildhuscliff to their house, to lay pipes under the street of the town, and repair them when necessary.'

The Latin word, in the medieval documents, means 'pipe', 'culvert', 'conduit'; the translators have varied their interpretation. The pipe referred to was in fact a stone-built conduit. (See text and Note (14).)

So the first conduit was constructed in 1319, presumably whilst the town was being rebuilt after having been burnt and plundered (1318) by Black Douglas the Scot. The sharing arrangements were apparently not to the satisfaction of the Friars; for nine years later they were negotiating for a new supply and more definite arrangements. Document 47D (Jeayes) describes:-

(b) 'A grant to the Grey Friars for making an aqueduct for use of the bailiffs and the Friars at the cost of the bailiffs, and bring the same up to the new pavement between the New and Old Borough: so

'however that the bailiffs may have two parts of the water and the Friars the third part: and their own pipe for the said third part may join to the main pipe as the Friars, bailiffs, and six honest men of the town may think expedient. When the aqueduct is completed any repairs that may be needed shall be done by the Friars, the bailiffs paying two parts of the cost'. Dated 7th March 1328.

Again there was delay: it was not until 1339 that there was official confirmation of the grant. In the interval (11 years) the Friars apparently changed their minds about sharing the water with the town: the sharing principle was terminated and a direct supply required: for document 47E (Jeayes) reads:-

'Charter of Ed III that whereas the Commonalty has given to the Friars a certain well in a place called Gildhuscliff near to the town to make a conduit from the Gildhuscliff well to the dwelling-house of the Friars he now grants that the said Friars may make the said conduit under roads and lanes of the said town where most convenient so long as no danger or hurt can be caused to anyone.' Dated 12th July 1339.

There is no mention of the bailiffs nor any sharing of the water: moreover in the 1328 negotiation the bailiffs bore the cost of the construction with the Friars paying their share; in the 1339 licence the Friars constructed the conduit themselves; so the conclusion must be that there were separate springs and separate conduits. This is supported by the events of 1774. In that year, Falsgrave took water from a spring which Baker (p. 26) says was the spring used by the Franciscans, and which would have ceased to be used by them in 1539. The fact that this spring was free for the use of the Falsgrave villagers indicates that it cannot have had any connection with the water system to the town, which had been functioning continuously for several centuries. So from 1339, there were two springs and two conduits.

Hinderwell gives the date of Falsgrave taking over the second Franciscan spring as 1774. Baker, however, gives the date 1744, and further mentions an Enabling Act in 13th year of George III to enclose part of Falsgrave Moor to form the Conduit House Close: this Act, Baker says, was deposited with the Scarborough Corporation. These dates are probably compatible: for there are three instances in this story of the water supply to Scarborough, in each of which there was a considerable interval between the authorisation of a project and the implementation thereof ..... 36 years, 11 years, and 25 years respectively. To Hinderwell, who was born in 1744, events taking place in 1774 would be within his knowledge and his memory: and in his History he would be recording the actual enclosure etc., which Baker, equally correctly, reported to have been authorised 30 years earlier.

ADDENDUM 1972

(8a) Where was the second Franciscan spring?

The information available is that it was in Gildhuscliff and that Baker, in his history, mentions the take-over by Falsgrave township, rather incidentally, after he had dealt with the Act of Enclosure in 1743.

There are, however, three deductions that can be made from matters previously mentioned:-

Firstly. The part of the second Franciscan conduit, discovered by Mr Poole in 1932, lay to the north of the town conduit; as this type of conduit could not loop over, nor dive under, the other conduit, it follows that the whole conduit must lie to the north of the town conduit, and that the spring must have been in a position to supply such a conduit.

Secondly. In 1818 the Falsgrave spring, i.e., the second Franciscan spring, was made to run into the Conduit Head: this means the second Franciscan spring must have been at a higher elevation.

Thirdly. In the 1821 documents only one source of water was mentioned as coming from outside the perimeter of Conduit House Close (the Stoney Haggs spring):- the suggestion here is that the second Franciscan spring was already inside the Close and that Baker's reference to this spring in association with the enclosure was intentional and not mentioned as just another incident.

We have located the Conduit Head, which leaves two other wells in the Park: the stone-hutted well in the north-western wooded end of the Park fulfils the required conditions - it is at a higher elevation than the Conduit Head, and it could, from its position, supply a conduit to the north of the town supply. Its beautifully built stone hut is in contrast to the surroundings of the other two Corporation wells, which suggests that the hut was built by other people and in other times, i.e., the Falsgrave villagers in the mid-18th century.

This suggestion is based on deductions, but it seems a reasonable answer to the question, 'Where was the second Franciscan spring?'

(9) The actual sites of the Great (or Upper) and Middle Conduits are not indicated in any literature before the 18th century; though the site of the Low Conduit was denoted when it was stated that the Borough Well (at the eastern end of St Sepulchre Street) became known as the Lower Conduit.

A town plan dated 1725 (an original plan is hanging on a wall in the Scarborough Museum) shows the Middle and Low Conduits sited at each end of St Sepulchre Street, and the Great Conduit is marked at the junction of Tanner Street (St Thomas Street) with the main road.

The Scarborough Water Act 1845 (Section 31) refers to 'Great Conduit in St Helen's Square'; and the Ordnance Survey maps of 1850 and 1852 also show the pump and conduit in St Helen's Square.

Further, a document (T.C.O.F., D 10, 2nd February 1821) reports on the laying of, and estimates for, a cast iron pipe to replace the lead pipe from the well at the north east corner of the Conduit House Close to the Upper Conduit, the last section of which reads, 'The Bull Inn yard thence to the High Conduit at Scarborough 122 yards'.
The Bull Inn was just outside the Newborough Bar; a measurement on the 1850 Survey map makes the distance from the Bull Inn yard to the site of the Upper Conduit, as indicated on the 1725 chart, to be +126 yards; whereas the distance from the Bull Inn yard to St Helen's Square on the same map is +337 yards. The Bull Inn yard is a wide space, and not a fixed point; there may be several yards error in such a measurement. So the Great Conduit was still at the corner of St Thomas Street and the main road in 1821: and, as it is inconceivable that an Act of Parliament and an Ordnance Survey map could be wrong in description, the conduit was in St Helen's Square in 1845. As it stands, then, it would seem that the Great Conduit was moved between the years 1821 to 1845 - if so, why? Unfortunately, no journals of the period are available: so chance reference in contemporary literature, sometime to be discovered, could be helpful.

(10) Scarborough 966-1966, p. 47

(11) T.C.O.F., D 10 - document 1.

(12) Scarborough 966-1966, p. 6

(13) The Romans used lead piping for their water distribution system, but after the Roman civilisation disappeared, the use of lead pipes also ceased. According to the Manual of British Water Engineering Practice, the use of lead pipes for water channels had been revived in London in the 14th century. Scarborough would be only 100 years behind the times. This is not so bad as it sounds; for communication was extremely sluggish, and further, the relationship between the metropolis and the periphery was, to say the least, indifferent in all matters except the collection of taxes!

(14) The document is in the archives of the Scarborough and District Archaeological Society dated July 1970.

(15) William ('Advertiser') Smith came to Scarborough shortly after the turn of this century as an Inspector for the NSPCC. He produced and edited The Scarborough Free Press, which was given away free and, apparently, was supported by the revenue from the advertisements (hence the sobriquet). He was greatly interested in the Old Town and gave public lectures. He published no archaeological material nor recorded any research.

(16) Rowntree, p. 392.

(17) T.C.O.F., D 10, document dated 2nd February 1821.

(18) Baker, p. 346.

(19) ibid.

(20) M., 3rd November 1877.

(21) Hutton, p. 161.

(22) T.C.O.F., D 10, documents dated 11th October 1802: 18th October 1802: and 15th December 1802.

(23) Baker, p. 346.

(24) In the literature, and in the documents at the Town Hall, there is no clue as to the location of the Conduit House Close nor of the Conduit Head, other than that the former was part of Falsgrave Moor and the latter in Gildhuscliff ..... both of which are areas of considerable size: in fact, William Smith, the geologist, refers to the area as a 'water laden bank nearly a mile long' (Note 32). There are certain facts that can be pieced together as clues to the location:-

(a) In the middle of the 18th century, part of Falsgrave Moor was enclosed to form the Conduit House Close ..... there was apparently a Conduit House.

(b) In the early years of the 19th century two more springs and wells were brought into the Conduit House Close (a well, in this sense, was a sump in which the spring water was collected and piped away) - the wells are mentioned (T.C.O.F., D 10, 2.2.1821) as 'in the N.E. corner' (and sometimes called 'the lower well'), 'the higher well' and 'the well at the highest level'.

(c) In 1821 (same document) the lead pipe from the N.E. corner well to the town was to be replaced by a 4-inch cast iron pipe.

(d) The pot pipes from Stoney Haggs Springs (see text) were to be replaced by a 3-inch cast iron pipe to the lower spring, with a fall of 5 inches to 100 feet (D 10, 3.7.1807).

(e) Baker (p. 278) says the area of Conduit House Close (No. 254 on the plan of Corporation properties) was 13 acres and 12 perches (equals 13.075 acres).

Senior Scarborough citizens recalled that in their boyhood there were three wells at different levels in Falsgrave Park, though an Ordnance

Survey (1890) map shows only two wells:

(a) In the N.E. corner of the Park close to the boundary wall, through which an entry opening is shown: this site is close to the gardens of the top houses in Oak Road.

(b) Much higher in the wooded N.W. end of the Park.

A considerable search found a third well (covered with turf) at a point 48 yards from the southern end of the Park and 8 yards in from the top edge of the wood.

So there were apparently three wells at different levels in the Park. As seen today, the highest well is capped by a square-shaped, slightly domed slab, 36 inches across, with a small aperture in its centre. The well in the N.W. part of the Park is covered by a stone-built hut 7 ft by 5.5 ft, and 5 ft high, surmounted by a high pitched stone-built roof; the hut had an entrance, now closed by obviously more recent masonry. The N.E. corner of the Park is covered with soil some 6 or more feet deep; the area has been used for garden debris for some decades. However, on the eastern (low) side of the wall, the entrance through the wall, previously mentioned, is clearly marked by the relatively recent brickwork which has closed it; on the western (Park) side, a little clearance revealed the lintel of the entrance, a fixed point for measurements to locate the site of the wall.

None of this is, of itself, conclusive that Falsgrave Park is the area of the Conduit House Close; but two modern pieces of information are helpful to fit the clues together:-

(a) The area of Falsgrave Park today is 13.050 acres. If the small encroachment at the northern end due to some housing development is taken into account, this figure is significantly like that reported by Baker ..... 13.075 acres.

(b) Mr P. Howard, BA, lecturer in geography and surveying at the Technical College, Scarborough, kindly contoured a line from the Stoney Haggs spring towards Scarborough with a fall of 5 inches to 100 feet. The line arrives at the lower edge of Falsgrave Park, making towards the lower well. (Fig.3)

It does seem reasonable to believe that the boundary of Falsgrave Park enclosed the Conduit House Close, and that the spring and well at the north east corner of the Park was the original Conduit Head.

The numbers on the plan of the Corporation's properties mentioned by Baker bear no relationship to the numbers of parcels of land on the Ordnance Surveys. No copy of the Corporation plan is available.

(25) Baker, p. 346 and T.C.O.F., D 10, document dated 3rd July 1807.

(26) Hinderwell, p. 257 and Baker, p. 26.

The right of Scarborough to divert the spring from the Falsgrave pump to the Scarborough supply is based on a Charter dated 1256 whereby Scar-

borough was permitted to enlarge its boundaries by adding the Manor of Walsgriff with all the lands, mills, plants and other things, subject to a feefarm rent: so the spring was really the property of Scarborough Corporation. It may seem extraordinary that the water to the Franciscan convent was not taken over by the town when the Franciscans were turned out in 1539. At that time, however, the town was getting an adequate supply through the lead pipe installed some fifty years earlier. Their experience had shown that a similar lead pipe would ultimately be necessary to maintain a supply through the abandoned Franciscan conduit; so with an adequate supply of their own, it seems probable that the cost of laying another lead pipe would not appeal to them; the Franciscans' stone-built conduit, through lack of attention, would leak increasingly and the supply to the town would gradually fade out entirely. The spring which supplied this conduit seems to have been forgotten by the Scarborough burgesses, but had eventually been found and used by the Falsgrave villagers as already stated (Baker, p. 26.)

(27) T.C.O.F., D 10, document dated 2nd February 1821.

(28) Richard Stickney's letters are indexed in the Library.

(29) Baker, p. 346.

(30) William Smith 1769-1839: a Bibliography of the published writings, Maps and Geological Sections, by Joan Eyles, 1969 (Library)

The Bibliography lists 51 items of which the paper 'On Retaining Water in the Rocks for Summer Use' is numbered 36. From the titles of the publications, it is clear that Mr Smith was Consultant Engineer and Advisor on Drainage, and Irrigation Projects: he became an authority on stratification in geology and on fossils in the said strata.

He had been serving as agent to the Hackness Estate of Sir John Johnstone for several years when he was called in by the Commissioners to advise on the water supply to Scarborough and became interested in underground storage of water as detailed in the paper read to the Yorkshire Philosophical Society on March 6th 1827 (No. 36 as already mentioned). He continued his association with the town; for three of his later papers (1835 to 1837) are written under the name of 'William Smith, Scarborough'. He was associated with the foundation of the Scarborough Museum at the bottom of Vernon Road.

(31) Richardson, quotes from a letter from Wm Smith to his Patron, Sir John Johnstone of Hackness Hall: he describes the construction of a brick cylinder reservoir in Workhouse Yard (Chapman's Yard now) to receive the spring water arriving in the town. It consisted of a brick-built cylinder sunk 20 feet below the solid ground, 40 feet in diameter and covered with a brick-built dome-shaped roof 40 foot span by 20 feet high; the dome was thickly covered with clay surmounted by an earthern bank; the capacity of the reservoir was 4,000 hogsheads (210,000 gallons of water). By this means he controlled the outflow and prevented waste of water.

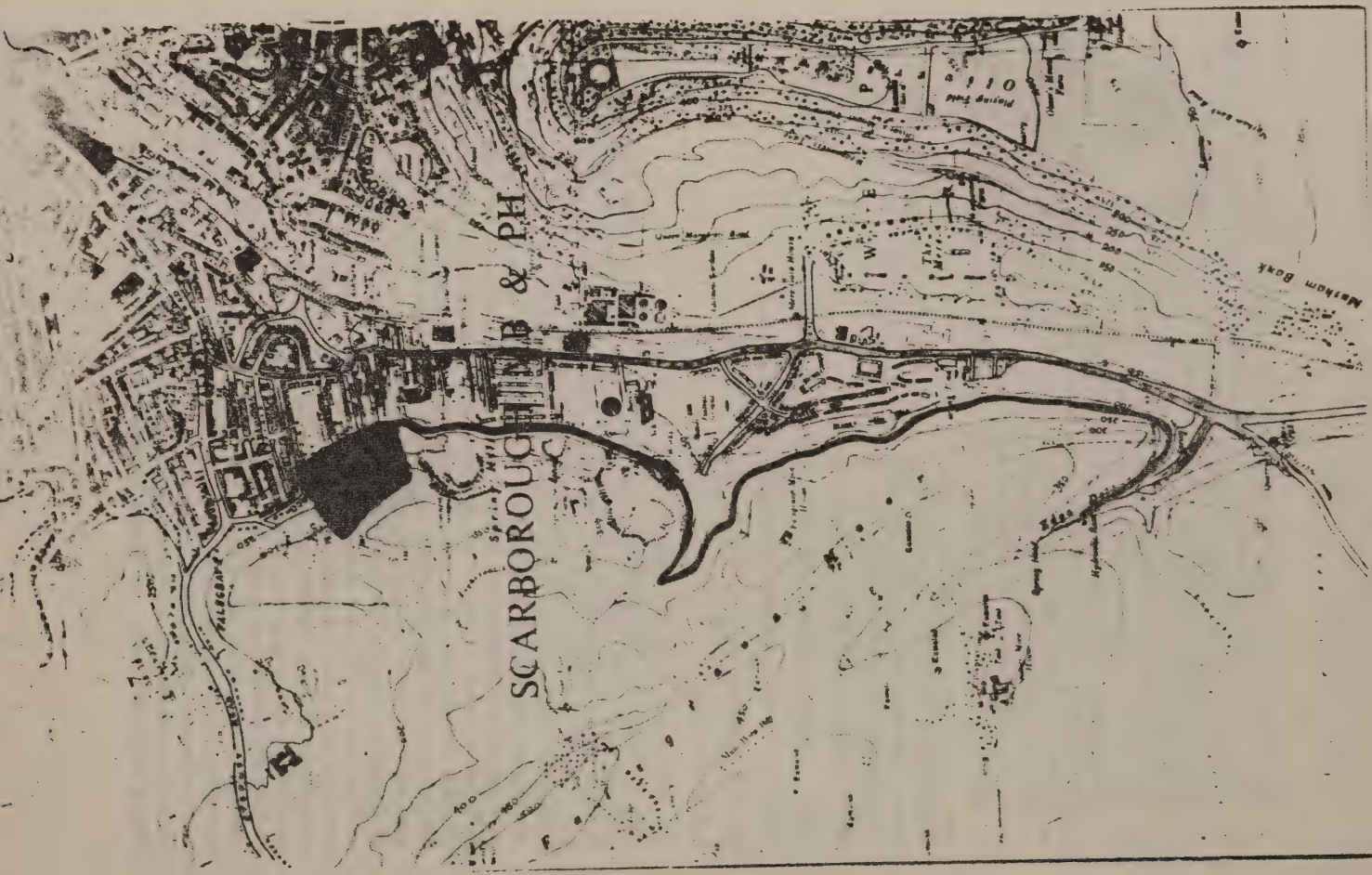


Fig. 3 The line contoured by Mr P. Howard from Stoney Haggs spring towards the town wit a fall of 5 inches to 100 feet

(32) Quoted by Richardson. A résumé of the paper 'On Retaining Water in Rocks for Summer Use': somewhere in the Spring Hill area Smith had found water issuing from a drainage pipe made several years before for draining the land: cutting down into it, he found that the deeper he got, the more water came out, amounting ultimately to 2,600 gallons per hour; the amount however dwindled as time went on, and he suspected that he was draining a stock of water confined in rock crevices. He thought that if he blocked up this escape the water might continue to collect in the rock crevices to a much greater amount which could then be used in the summer-time to add to the town supply. The location of this experiment is difficult to place; he describes a hill about a mile long, narrow on the top, insulated in all the upper parts of its stratification, and in the area of the drainage pipe mentioned above, the rock was nearly as upright as the edge of a wall. About 2 yards within the edge of the base of the rock he dug a collecting basin, 6 feet in diameter and 4 feet deep to receive the water flowing from the crevices of the rock; the cavity was closed over with a cast iron exit pipe connected to the town main, but with the last section of pipe stopped off and with a vertical pipe 4 feet high as a sort of pressure gauge. After rainy periods more lengths of pipe had to be added to the gauge which was eventually 14 feet high. He calculated that the strata would contain some 12,000 - 15,000 hogsheads of water (625,000 to 780,000 gallons) by the end of the winter months.

(33) Baker, p. 358.

(34) M., 3rd November 1877.

(35) T.C.O.F., D 10, document dated 7th September 1844.

(36) ibid., documents dated 18th April and 1st May 1845.

(37) Water Company 1845 Act - Section 31.

(38) Millhouse and Richardson. A journalist's account of the History of the Water Company published in the York Herald (1885) and copied in the Scarborough Gazette, 11th June 1885 - contains six provable errors and this story which, in précis, is:-

> 'The first move of the Company was to utilise the overshot water wheel of the cornmill to work pumps and to build a reservoir at the corner of the road leading to Mr Alderson Smith's house from the Filey Road whence it gravitated to the town: a catch reservoir was built below the wheel; the wheel made 5 revolutions in 2 minutes; 700,000 gallons estimated to pass over the wheel and about 300,000 from the level of the pumps. After 7 years (1852), more water was needed so a steam pump capable of raising 400,000 gallons of water per day installed to raise water to the same reservoir. In 1862 the Company, 'having had one or two small reminders of the danger of running short in their supplies', put in a more powerful engine raising 720,000 gallons per day. This made the capacity of the reservoir too small: an Osgodby Top reservoir was built at 300 feet with capacity $4\frac{1}{2}$ million gallons'.

It is to be noted that neither Millhouse nore Richardson make any mention of water wheel pumping ..... Millhouse was engineer to the Corporation in 1885 when the journalist's account was written, and Richardson was Millhouse's successor. Richardson makes the statement that the first steam pump was installed in 1845 and both Millhouse and Richardson state that the second engine was installed in 1853. Further, the Town Clerk's Office Files contain the conveyance of land and the plans for the Osgodby Top reservoir (337 ft OD) dated 1854; the reservoir went into service in 1855. This disparity of dates makes the journalist's story unreliable. Is it possible however that the Water Company initially had the idea of using a water-wheel-driven pump? Or did the Company actually try it ..... with very rapid discovery that it was unable to raise an adequate amount of water to the elevation of the reservoir? Or did the fact that the seal of the Water Company depicted an overshot water wheel put the idea into the journalist's mind? Be that as it may, the account contains one point of factual interest ..... the first reservoir at the corner of the road leading to Mr Alderson Smith's house.

Mr Alderson Smith's house, called Wheatcroft Cliff, became known in 1935 as Holbeck Hall Hotel, on the side of which there is a plaque commemorative of the building of the house in 1880 by G. Alderson Smith, Esq. 'The road leading to (this) house', therefore, is Seacliff Road. The site of the reservoir is still evident on the north west corner of the junction with Filey Road; a densely overgrown depression with, on the seaward side, remnants of the reservoir wall. Two houses, Nos 52 and 54, Filey Road, have been built on the north western end of the reservoir and a segment of the base of the reservoir wall, to a height of 4 feet, can be seen incorporated in the cellar walls of No. 52. The dimensions of this open reservoir were 160 ft x 90 ft x 16 ft with a working capacity of 1,000,000 gallons. Figure 4 shows the outline of the reservoir wall on a plan which includes the outline of the two houses built at the northern end of the reservoir site and the outline of a projected building in the middle of the site which was started, but was called off because of the 1939/45 War.

The line of the water main would be expected to follow the line of the Filey Road; proof that it did so is found in the report (M., 17th August 1878) on Mr Filliter's Jugger Howe scheme (see Note 47) which states that this proposed new supply would join up with the existing main to the town at the junction of Washbeck Lane, also called Bleach House Lane, and the road from Filey; Bleach House Lane is now called Westbourne Grove; so the proposed junction would have been where the traffic lights on the crossroads are now situated. There is no evidence as to its further progress, whether it dipped down Plantation Hill or followed the Ramsdale (Ramshill) Road or maybe did both; nor is there any evidence at what point the main to Falsgrave branched off. If the Minutes of the Water Company could be found, these points would be cleared up.

(39) T.C.O.F., D 10, document dated 5th November 1845. The streets to be opened on 28th November 1845 were:-

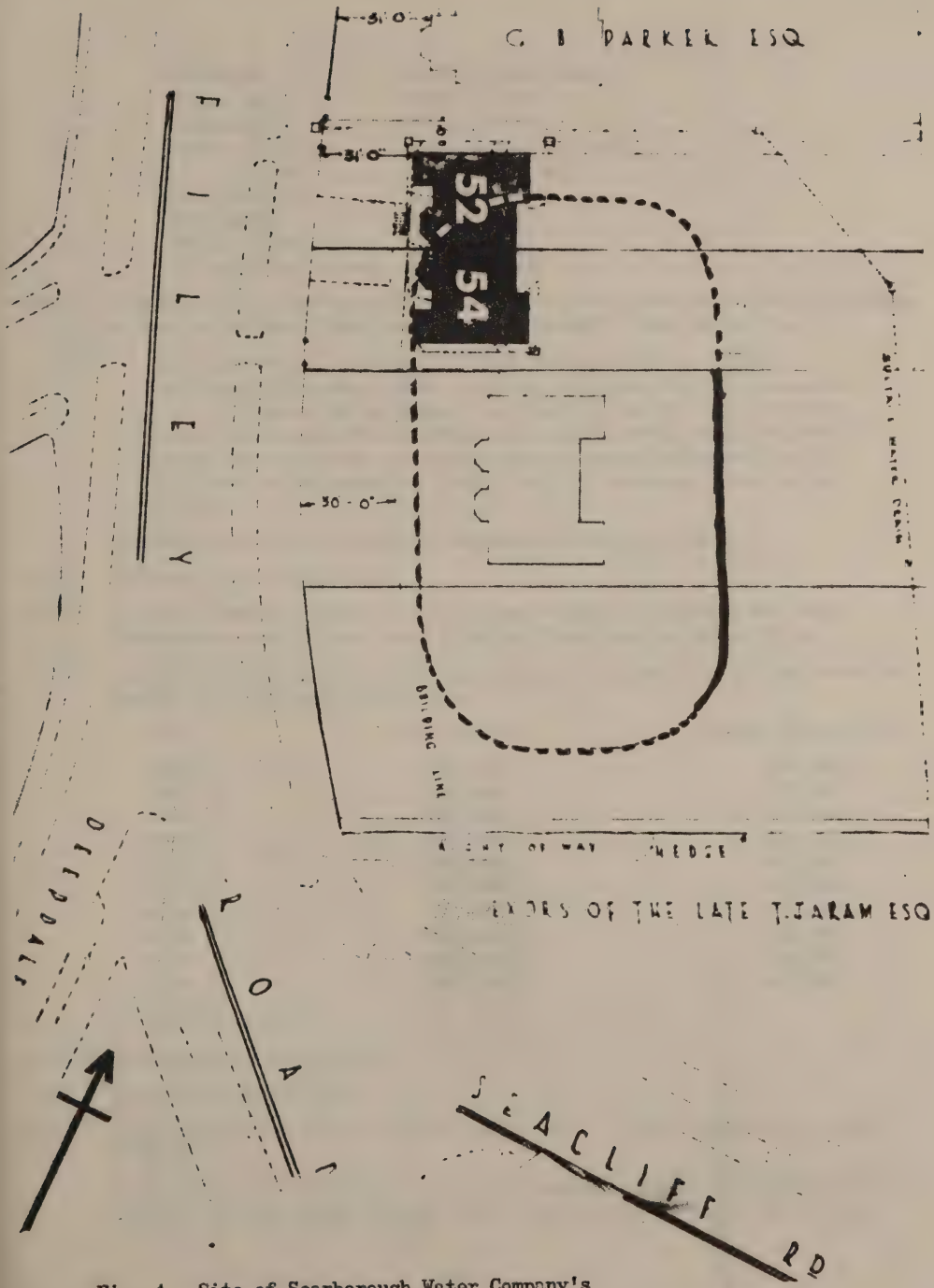


Fig. 4 Site of Scarborough Water Company's first reservoir

Greengate	Leading Post Street
Friars Entry	Globe Street
Tollergate	Cook's Row
Church Stairs	Lower Conduit Street
Street	Princess Street
High Westgate	West Sandgate
Castlegate	Quay Street
Dumple Street	Sandside
St Sepulchre Street	Bland's Cliff

(39) Library, Mr G. Knowles writing 'Observations on the Expedience of Making a Line of Railroad from York to Scarborough'. Supplement, p. 1.

> 'The Chairman of the York & North Midland Railway Company speaking in November, 1843, told his audience that he possessed great influence in Parliament and that he had no doubt of his wishes respecting the Scarborough Railroad being complied with: indeed the certainty of success was so deeply impressed on his mind that he had actually bought all the necessary iron rails for it'.

The Enabling Act did not come through until April 1844.

(41) Millhouse and Richardson.

(42) G., 12th February 1866. The original agreement between the Water Company and the Corporation is in the Town Clerk's Office Files.

(43) M., 13th October 1877. The average water consumption per day over the decade 1866-1876 was quoted as:-

Year	Whole Year	Maximal Summer Rate
1867	439,700	544,980
1868	481,000	613,000
1869	567,000	629,000
1870	498,000	663,000
1871	529,000	643,000
1872	557,000	675,000
1873	572,000	751,000
1874	641,000	680,000
1875	594,000	774,000
1876	664,000	817,000

(44) M., 20th May 1871.

(45) Millhouse and Richardson

(46) M., 13th October 1877.

(47) M., 13th October 1877 and 17th August 1877. Water Company Act, 1878, Section 6.

Mr Filliter, Water Engineer to Leeds Corporation, became Consultant Engineer to the Water Company (and later to the Corporation) on the

death of Mr Wickstead. He put forward a plan to the Water Company in 1877 and later repeated it to the Corporation:-

> To collect the water from Jugger Howe Beck, Barn Howe Dale Beck, Hollin Gill, Round Rigg Beck, Biller Howe Dale Beck by erecting a dam and creating a storage reservoir at 400 ft OD of 60 acres extent and 60 feet deep with a capacity of 300,000,000 gallons: from this reservoir 1,000,000 gallons of water per day would be led through a 10-inch pipe to an intermediate reservoir at a high point near Scalby (site not specified) where the water would pass through a sand bar filter: the outflow pipe, still flowing by gravity, would join the town main at the junction of the high road from Filey to Scarborough with the junction of Washbeck Lane otherwise called Bleach House Lane (but now called Westbourne Grove). No pumping would be required, as the 8-mile length of pipe would descend from 400 feet to 181 feet OD.

(48) M., 13th October 1877. The Royal Commission in 1869 to enquire into water supplies reported:-

> 'In a matter of such vital importance to the health of a large population, the Commission consider that it becomes a serious question in what hands the water supply should be. The duty of supplying inhabitants of a city with water has, from a very early period, been regarded as a peculiarly municipal function; the supersession of the municipalities by joint stock companies is a comparatively modern invention: but of late years, many towns in England have come to the conclusion that the new practice was a fundamental error and have resumed the ancient principle by taking control of the water supply into their own hands.'

(49) M., 3rd November 1877.

(50) ibid., Editorial leader.

(51) M., 22nd December 1877.

(52) G., 17th January 1878. The result of the Referendum Poll was:-

For	Against
84 owners of property	14 owners of property
1845 ratepayers	845 ratepayers
1929	859

5533 papers were sent out: 3827 returned, of which 1320 were blank. 117 rejected on account of unpaid rates.

The 1320 blanks, which were in modern parlance presumably the 'don't knows', were accepted by the then Council as a vote of confidence that 'the Corporation would do what was best for the town': no-one suggested any other explanation.

(53) M., 2nd February 1878

(54) M., 20th October 1877.

(55) G., 9th December 1878.

(56) M., 14th December 1878. It was reported that the colour of the peaty water could be removed by:-

Spencer's carbide method - a process that would cost £5,000 per annum to deal with 1,000,000 gallons of water per day: or

Bischiff's patent spongy iron costing £1500 to deal with 1,000,000 gallons of water per day: but as this process required filter beds, the cost would be raised to much the same level as the other process.

(57) M., 26th July 1879.

(58) M., 18th October 1879.

(59) G., 15th April 1880.

(60) M., 26th July 1879.

(61) Millhouse.

The actual well is 10 ft in diameter to a depth of 70 feet
24 ins " for a further 28 feet
20 ins " " 152 feet
12 ins " " 178 feet

The strata through which the bore takes place:-

Boulder clay, gravel and sand to a depth of 55 ft 6 ins
Kimmeridge clay for 45 feet
Upper calcareous grit for 36 feet
Upper and lower limestones for 120 ft 6 ins
Lower calcareous grit for 135 feet
Oxford clay for 28 feet

(62) Victoria County History of Yorkshire (North Riding), Vol. 2, p. 443 (Library). Dame Sarah Hewley, the last of the Hewleys, died in 1709 and settled three quarters of her estate in trust for the maintenance of dissenting Ministers ..... the Trust is now controlled by the Wesleyan Methodist Conference and its officers. Any new building on the Trust property erected after 1709 would not be entitled to carry the Hewley coat of arms. This mill therefore must have originally been built before 1709.

(63) According to Fox-Strangeways, The Jurassic Rocks of Britain (1892), the gathering ground for the strata tapped at Irton is about 30 square miles.

(64) The diagram by the kind permission of the Scarborough Water Undertaking.

(65) Millhouse.

(66) Paterson. Gravity filters with two small reaction tanks and coagulant gear.

(67) W.S.M., 4th December 1920.

(68) E.N., 24th November 1924.

(69) The second bore hole. The dismantling of the steam engines and installin new machinery at the original bore hole would have taken many weeks, durin which time the only supply to the town would have been from Cayton Springs and Osgodby Well, a supply which had proved inadequate 50 years previously It was thus necessary to sink a new bore hole and complete the new pumping station whilst the old engines continued to put out their quota from the original bore hole. When the operation was completed, the original bore hole and its engines were retired to stand-by duty.

The principle of sterilisation of drinking water was worked out by Sir Alexander Houston in 1903 after the terrible epidemic of typhoid fever in the British Army during the Boer War and the cholera epidemics in Britain ..... in all of which affected drinking water was the culprit. The process was first established at Reading in 1910. In 1921 the Ministry of Health circulated all municipalities advocating chlorination of drinking water. Initially, the chlorinating agent was bleaching powder; but soon the controlled use of chlorine gas became the practice; it was in this form that the process was introduced at the Irton Works in 1928.

(70) M., 29th October 1926.

(71) W.S.M., 22nd January 1926.

(72) M., 12th October 1928.

(73) Ministry of Housing and Local Government; Yorkshire(East and North Ridings) Water Survey. Summary of Report by A. R. Vail, BSc, MICE.

(74) This Northern sector is not an independent entity. Scarborough Water Undertaking is still responsible for the supply of water in the area, for dealing with emergencies, and to satisfy the needs of industrial development. Permission has already been given to abstract an additional quantity of water from the River Esk.

(75) For this reorganisation, water from the original bore hole was used; the old pumping machinery was dismantled, temporary electrically driven pumps installed and supply of water to Scarborough ensured; the extensive modernisation of the station and the installation of the very powerful pumps were then possible without any difficulties for the town.

(76) Summary of the Pumping Systems and Reservoirs

Cayton Bay station changed from steam to a Crossley gas engine in 1912, and finally to electrically driven pumps in 1939. Osgodby changed from the steam pump, after a period of disuse, to electrically driven pumps in 1968. Both these stations pumped directly to Osgodby Top Reservoir ($4\frac{1}{2}$ million gallons) 335 feet OD. The Irton station changed from steam to electrically driven pumps in 1928. Whilst using steam pumping, the Irton water was pumped to both top and lower Oliver's Mount reservoirs (each $1\frac{1}{2}$ million gallons): but when the change to electrically driven pumps was made, the Irton water was pumped to the

lower Oliver's Mount reservoir (338 feet OD) and to the Springhill reservoir (3,000,000 gallon capacity and 362 feet OD): it was then more economical to put a small booster pump to raise water from the lower to the top reservoir at Oliver's Mount than to pump directly to the top reservoir (505 OD).

The Racecourse at the top of Stepney Hill was used in the First World War for troop encampments, the water for which came from a tank fed by a booster pump in Weydale (1915). The housing development which is extending to the high ground up Stepney Hill is now supplied by a 10,000 gallon tank on a tower on the Raceccurse fed by a booster pump installed at the corner of Stepney Drive and Stepney Road. The Weydale booster pump is dismantled.

In the event of power cuts, or failure of electrical supply from any cause, a diesel driven generating plant capable of supplying current for full functioning of the pumps was installed at Irton in 1971.

Finally the bore hole put down in Cayton Carr (1971) will be pumping 1½ million gallons of water per day (or probably more later) to Osgodby Top reservoir.

ACKNOWLEDGEMENTS

With grateful thanks to Miss Leese-Layton, Librarian of the Scarborough and District Archaeological Society, for her help with the research in the journals of the past; to Mr Peter Wicks, CEng, MICE, MIWE, for help with more recent events; to Miss Gullen, Chairman of the Scarborough and District Archaeological Society, for help with the format of this article; to the Evening News and Mercury office for access to their files; to the Town Clerk and the staffs of the various departments of Scarborough Corporation for information and access to appropriate files; and to the staff of the Scarborough Reference Library for their willing helpfulness.

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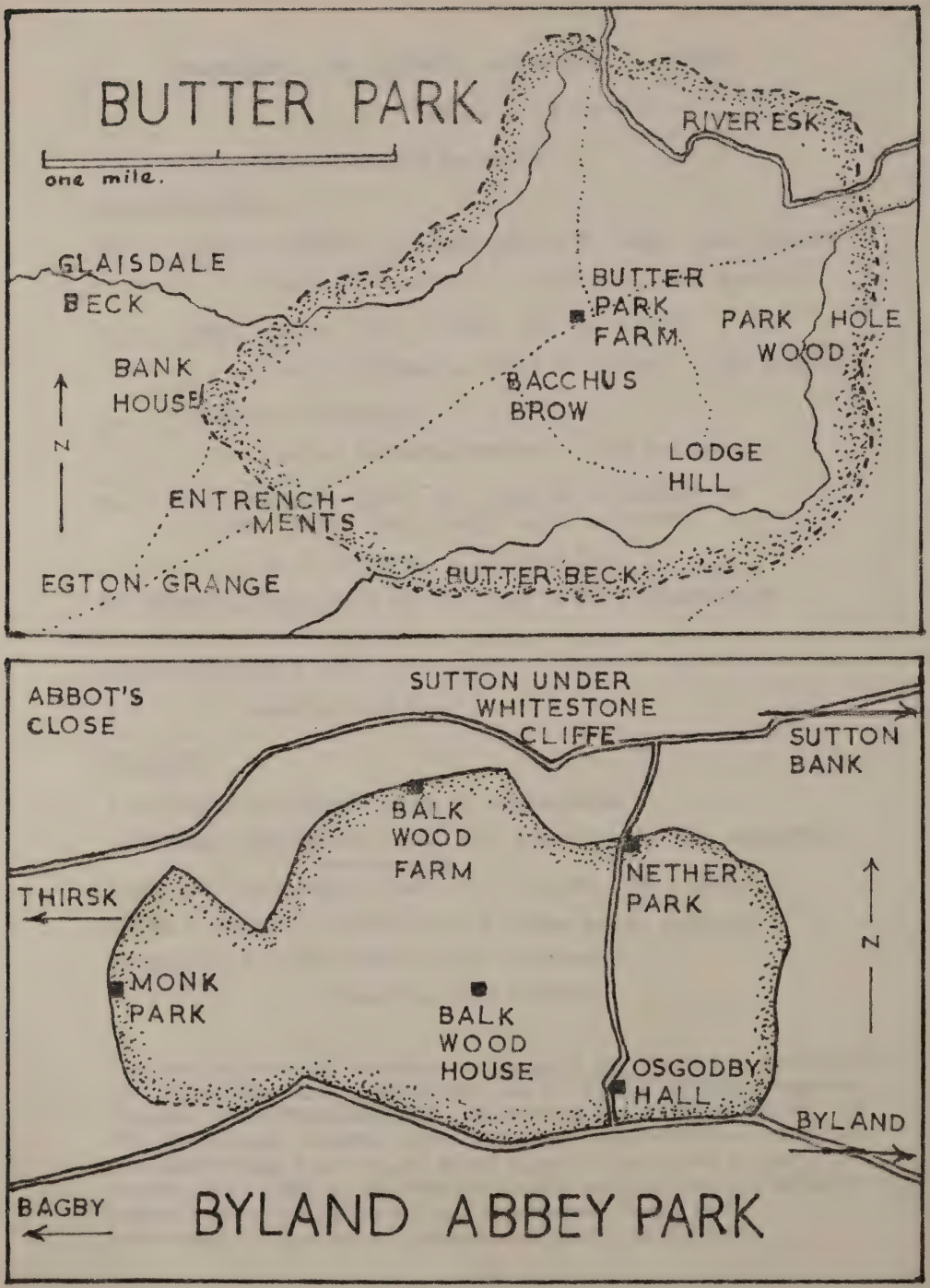

BUTTER PARK
one mile.
RIVER ESK
GLAISDALE BECK
BUTTER PARK FARM
PARK HOLE WOOD
BANK HOUSE
BACCHUS BROW
N
LODGE HILL
ENTRENCH-MENTS
EGTON GRANGE
BUTTER BECK
ABBOT'S CLOSE
SUTTON UNDER WHITESTONE CLIFFE
SUTTON BANK
BALK WOOD FARM
NETHER PARK
THIRSK
N
MONK PARK
BALK WOOD HOUSE
OSGODBY HALL
BYLAND
BAGBY
BYLAND ABBEY PARK

THE EARLY DEER PARKS OF NORTH-EAST YORKSHIRE

By F. C. Rimington

PART II: THE CATALOGUE
(continued)

This is the second section of the catalogue of the old deer parks of the area of the North York Moors National Park. The first section (together with a key to the maps) appeared in the 1971 Transactions of the Society.

BUTTER or BUDICK PARK, near Whitby — Map ref: 790041

PLACE-NAMES PERSISTING: Butter Park Farm, Park Hole (Hall?) Wood, Lodge Hill.

All the old maps give the name of this park as Budick. It was so named on Saxton's 1577 map and is shown enclosed in a fence on Speede's 1610 map and its many copies. The park is not shown on Bowen's 1762 survey but appears again on Jeffrey's 1772 map clearly in the same place as Butter Park is shown on modern maps. The frontispiece of Grave's History of Cleveland, 1803, also shows the park in this position though some of the earlier maps are less clear about the precise situation.

As the park was shown as an enclosure on Speede's map along with other parks which were then definitely still operating, it seems likely that Budick was the only one of the five Egton Forest parks (Julian, Newbiggin, Coquet, Egton and Budick) to continue into the 17th century and beyond as a viable entity.

The name Butter does not occur until the earlier editions of the Ordnance Survey. The V.C.H. (II, 343) gives several earlier versions of the name, BYDWICH (15th century), BEDWITH (16th century), BUTHE (17th century). It seems likely that the modern name BUTTER stems from the last. The name BUDICK may derive from a personal name, BUDDA and BUTTI being in pre-Conquest times not uncommon; WICK = a farm or dwelling. On William Colley's map of Yorkshire, 1843, the name BIRDHOUSE Park is unexpectedly used, but it is BUDICK again on Cruchley's map of 1864.

Although the older maps provide reasonable evidence that Budick was an active enclosed park until comparatively recent times, it is remarkable how completely the old name has disappeared. It is possible as Canon Atkinson has suggested that a mistake was made by the Ordnance surveyors who misinterpreted the local pronunciation. Equally there is little, if any, known evidence of the park to be seen on the ground today - a widely different state of affairs from several of the other Egton parks; both Coquet and Julian still possess extensive remains of their pales.

There is a local story that Edward II and his entourage during his stay at Pickering in 1323 stayed a while at Budick on his way to visit Whorlton Castle, thus implying the existence of a major house as undoubtedly was the case in some other Egton parks. A memory of such a house may persist in the current name Lodge Hill, or in Hall Grange Farm, Park Hole (Hall?) or Bacchus (Bakehouse?) Plantation.

BUDICK (cont.)

There are a number of old stone walls in the area but they carry little conviction as park pales. There are also fragments of a ditch and bank at the southern end of the park but these are probably of an earlier date.

SUMMARY: One of the five de Mowlay parks in Egton Forest and the one that survived longest.

BYLAND ABBEY PARK — Map ref: 470814

PLACE-NAMES PERSISTING: Monk Park, Nether Park.

For the first two centuries of the abbey's existence the abbot and monks of Byland, though nominally forbidden the pleasures of the chase by their religious vows, possessed extensive hunting rights in Nidderdale as well as having the right of Free Warren (the hunting of small animals) in all their estates. In 1180 Roger de Mowbray granted to Fountains Abbey the deer and hawks of his Forest of Brimham (part of Nidderdale) and about the same time Roger sold to Byland for 100 marks the right of Free Chase (the hunting of deer) in the Forest of Upper Nidderdale, reserving to the Mowbray family the chase of the buck (male red deer) only. The Byland monks and their servants, to reach these hunting grounds, were allowed free passage through the Mowbray forest of Lower Nidderdale with their dogs, nets and bows and arrows, provided they did not poach the Mowbray game Y.A.J., 33, 380).

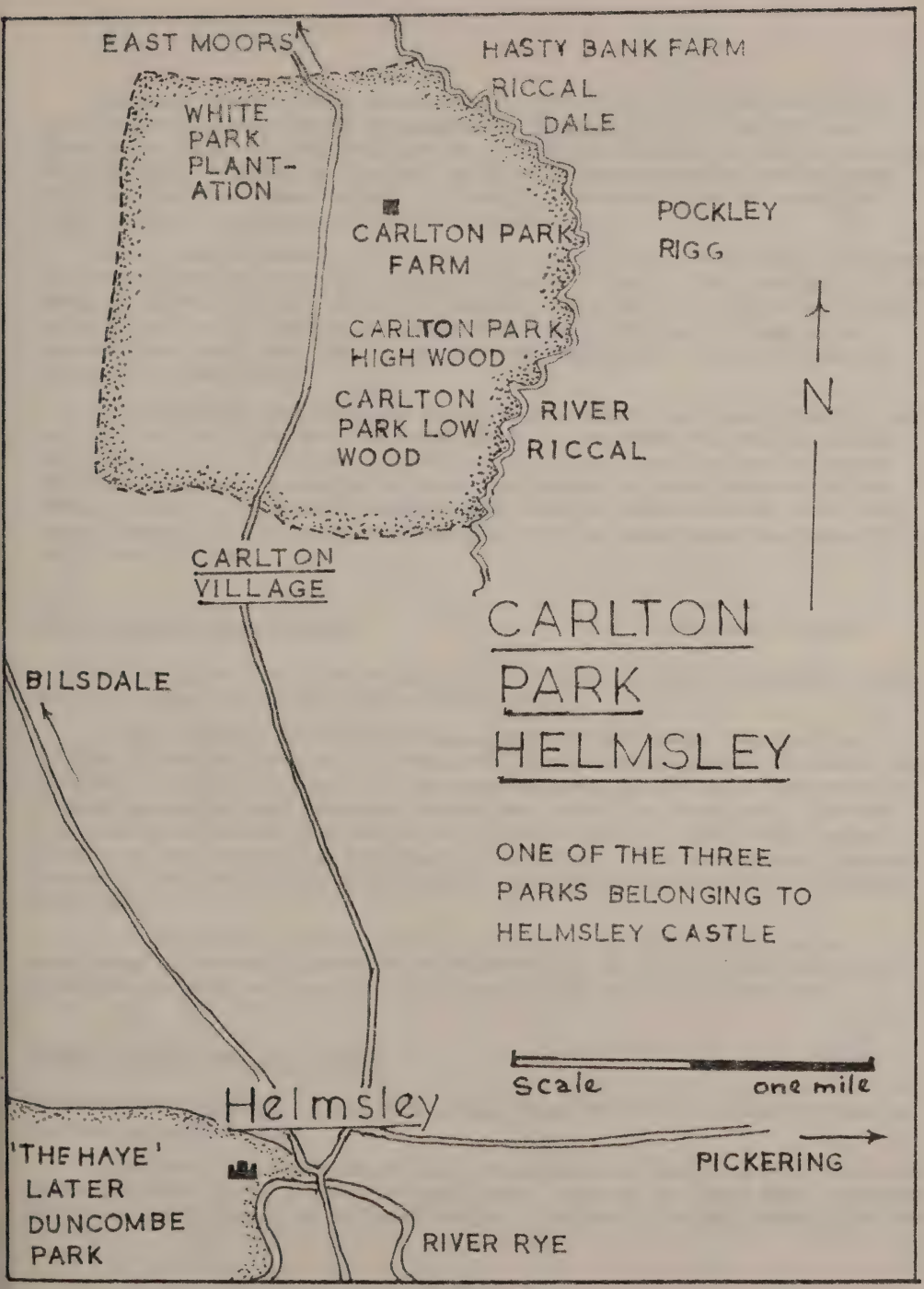
At this time Byland Abbey did not appear to possess a deer park but in 1380 the abbot obtained a licence to empark 100 acres (Cal. Pat. Rolls, 1377-81, 773). The V.C.H. (II, 14) says that all trace of this park has disappeared but there seems to be at least some place-name evidence for a park of this order at Balk near Sutton under Whitestone Cliff, some few miles from the abbey where Byland possessed land given by Hugh and William Malabis (confirmed by Henry III in 1247) and by Roger Mowbray. The Mowbray grant included a wood at Balk (the names Balk Wood House and Balk Wood Farm still persist) and it seems likely that this wood was the area enclosed by the abbey as a park in 1380; the enclosure of existing woodland was commonly done to create a readymade park.

A farm called by the very significant name of Monk Park bounds the area on the west and another farm called Nether Park stands on the lower part to the east. At the Dissolution the Byland land here was sold to Sir William Pickering and the park turned into farm-land. There are no known signs of the park pale remaining.

SUMMARY: The area bounded by Monk Park Farm, Balk Wood Farm, Nether Park and Balk Wood House was probably the late-14th century park of Byland Abbey.

CARLTON PARK near Helmsley — Map ref: 615880

PLACE-NAMES are particularly well represented: Carlton Park Farm, Carlton Park High Wood, Carlton Park Low Wood, White Park Plantation, Hasty Bank (= the path to the hay or park).


EAST MOORS
HASTY BANK FARM
RICCAL DALE
WHITE PARK PLANT-ATION
CARLTON PARK FARM
POCKLEY RIGG
CARLTON PARK HIGH WOOD
CARLTON PARK LOW WOOD
RIVER RICCAL
N
CARLTON VILLAGE
CARLTON PARK HELMSLEY
BILSDALE
ONE OF THE THREE PARKS BELONGING TO HELMSLEY CASTLE
Scale one mile
Helmsley
'THE HAYE' LATER DUNCOMBE PARK
PICKERING
RIVER RYE

The name 'Carlton Park' was used in the 18th century to denote not merely a farm, as it is today, but an extensive area (Helmsley, 198). In 1799 one Christopher Bulmer of East Moors nearby was fined a shilling for pulling down the park pale when entering Carlton Park to dig for limestone and not sufficiently restoring the fence when finished. Clearly at this late date the park pale still persisted, though no sign of it remains today.

It has been suggested that Carlton Park may have been the property of Rievaulx Abbey some few miles away, but Carlton Park seems always to have been part of the Helmsley Castle estates; all the references to Carlton in the Rievaulx documents refer to Carlton in Cleveland. Indeed there is no evidence to suggest that Rievaulx ever had a deer park though this was exceptional for a major abbey in the late medieval times.

It is probable that the River Riccal formed the eastern boundary of the park and the name Hasty Bank would describe the hill down which ran the approach to the park from this direction. There can be little doubt that Carlton was one of the three deer parks belonging to the de Ros family of Helmsley Castle and the absence today of any sign of boundary wall, ditch or bank on any of these three parks suggests that all of them had wooden pales and these have disappeared without trace (see HELMSLEY).

CHARM PARK near Hutton Buscel — Map ref: 984832

PLACE-NAME: Charm Park Farm, formerly Chamber Park, the name was changed during the last century presumably for aesthetic reasons.

In the Pickering Coucher Book (Hon. Pick. III, 44) among a list of men accused of hunting hares in the forest were Ambrose and Gilbert de Chaumbre. In 1334 John de Chambre was indicted for poaching deer (ib. IV, 38). Richard de Chambre appears to have been more careful and bailed the others out. He was a juryman in 1335 at an inquisition held at Ayton (ib. II, 278), only a mile from Charm Park, concerning the Priory of Yedingham. The Chaumbres or Chambers appear to have been a local yeoman family possibly living at some older Chamber Park house.

The present farm shows no sign of great antiquity and is doubtless a rebuilding. The name appears to be restricted to the house itself and all the available evidence confirms that there was no deer park here at any time.

CUCKET (COQUET) PARK near Whitby — Map ref: 799089

PLACE-NAMES PERSISTING: Cucket Nook, Alder Park, Moor Gate. Mulgrave Farm was earlier called The Lodge.

Cucket was first mentioned in the 13th century as Cuckewolde (= a wood frequented by wild birds, a common medieval name), part of the Egton manor belonging to the de Maulay family of Mulgrave Castle. Stephen de Maulay, probably the son

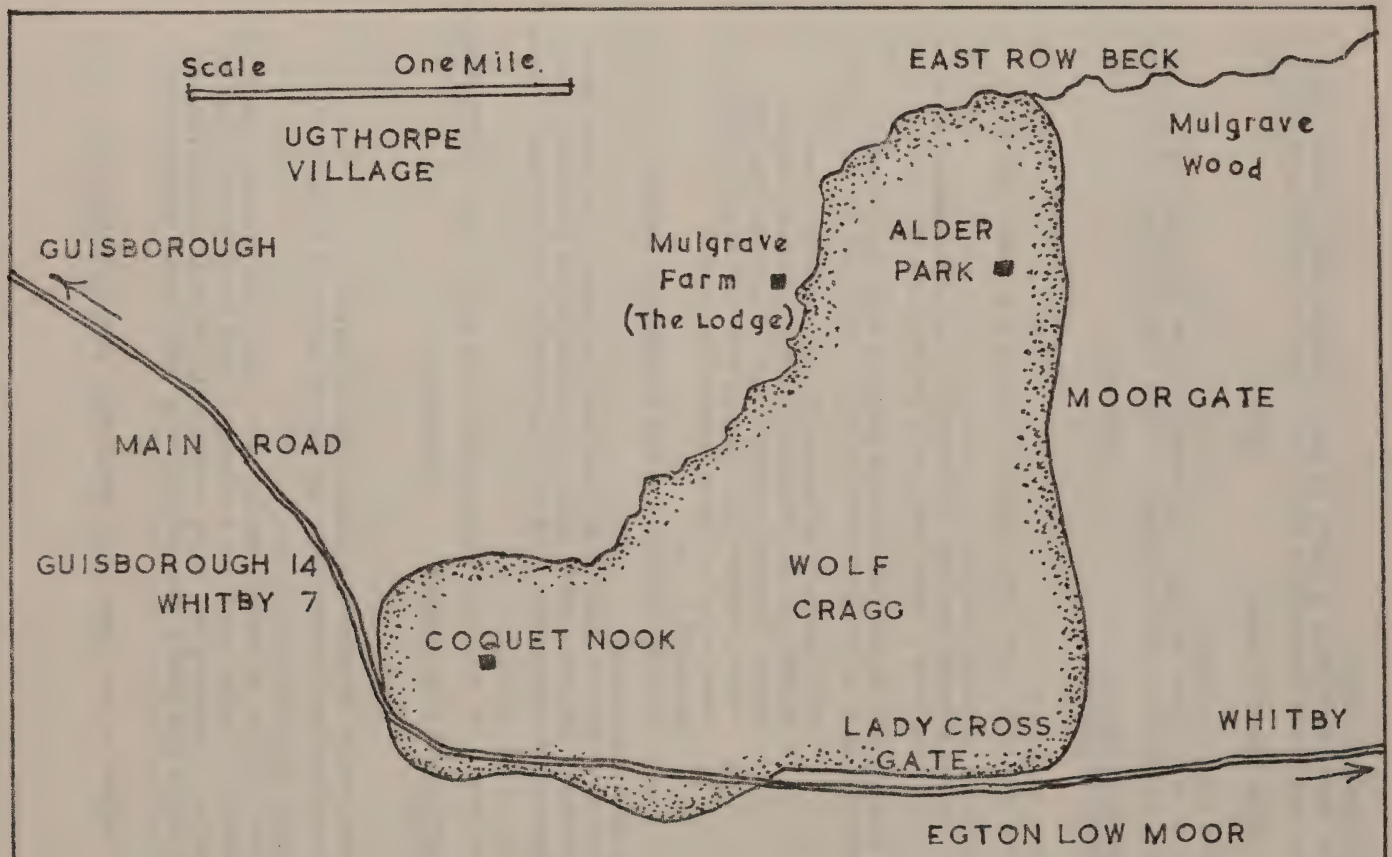
of the second Peter, claimed to have a park there (Kirby's Inquest, 134). In a de Maulay I.P.M. of 1309 is listed 'At Cokewald ..... a park 2 leagues in circuit'. Although the medieval league was a variable unit, it eventually became stabilised at 3 miles and the relatively complete pale-line to be seen today is about 6 miles round. The nature of the pale ditch and bank varies considerably, a not unusual state of affairs in the old parks. North of Moor Gate Farm a bank with a ditch on the inner side runs for about a mile to the ford over the East Row Beck (822112). The bank is 15 - 18 ft wide and 2 - 4 ft high. The original depth of the ditch appears to have been about 4.5 ft (Wade's Causeway, 82). The straight alignment of this part of the pale combined with the very wide bank make it likely that it is of comparatively late construction and carried a double fence. Other examples of this type of late pale are to be seen at Sinnington and Normanby parks. To the south of Moor Gate the bank has a ditch on both sides and extends for about a mile crossing the main Whitby-Guisborough road at 823084. The bank here is 12 - 15 ft wide and 4 - 6 ft high. A much narrower bank continues westward roughly parallel with the road for about 2 miles; the bank here is about 6 ft wide and 2 ft high with a 3-ft ditch on the inner side. The pale in this section forms the boundary between the de Maulay Egton and Mulgrave estates. On the 1878 Egton estate map it is called the Buskae Dyke and a boundary stone on the bank is called the 'Cock in the Nook', the 'Nook' being the corner of the park where the pale makes a sharp bend. Much of this pale is shown clearly on the Ordnance Survey maps.

Peter de Maulay had a charter of Free Warren at Cuckwald (temp. Henry III); apparently he had not yet received licence to empark. In 1332 a party of local gentry killed deer in Pickering Forest with the hounds of Peter de Maulay and carried them to his house at Cucket Nook with his knowledge and consent (Hon. Pick. II, 67), showing that there was then a major residence probably where Cucket Nook Farm now stands. Pickering Forest documents also record the penalty of outlawry on Roger, park-keeper for Peter de Maulay for poaching deer in the royal forest (Hon. Pick. IV, 87).

Alder Park Farm lies in the opposite corner from Cucket Nook. The name may mean what it says for there are plenty of alders about, but equally it may mean the 'Old Park'.

The enclosure shown on the 16th-century Saxton map as the park of Mulgrave Castle (incidentally the largest enclosure on the map) clearly represents Cucket Park. It shows a river running through its centre, presumably the East Row Beck which joins the sea at Sandsend. This implies that the park then extended well to the north of the beck though today the pale-line only remains to the south.

SUMMARY: Cucket, the largest of the five de Maulay parks and the nearest to Mulgrave Castle seems to have developed into the main Mulgrave park.



COQUET OR CUCKET (MULGRAVE) PARK

ARCHAEOLOGICAL INDEX FOR NORTH-EAST YORKSHIRE 1971-72

To enable this annual gazetteer to be as complete and up-to-date as possible it is requested that brief accounts of fieldwork, excavations and the discovery of chance finds are forwarded without delay to the Editor of the Transactions at the Scarborough Museum. The Editor wishes to thank contributors to the present Index.

The entries are arranged under the name of the civil parish in which they occur and the parishes are listed alphabetically.

BEADLAM, NR

ROMAN VILLA SITE, RICCAL BRIDGE SE634842

Previous reports on this important site have been made in these Transactions No. 9, p. 43, and No. 13, p. 53.

Excavations were resumed by Dr I. M. Stead on 1st May 1972 for a period of six weeks on the east wing or block. The foundations uncovered were not standing as high as those of the main dwelling house. At least three periods were represented:

(1) cobbled footings of a long rectangular building extending N - S;
(2) cross walls of late 4th-century buildings;
(3) apsidal building with apse at east end, partly robbed but the remainder standing three or four courses high. Entrance to west and earlier walls were cut to make this structure free-standing. No evidence of use.

Extending NE - SW and not aligned on other structures was a well-made road 3 metres wide, of limestone cobbles overlaid with thick gravel.

The finds included a large quantity of pottery, chiefly late 4th century, thirty coins of the late 4th century, a few small ornaments and a large number of animal bones.

Less than half of the east block was exposed and excavations will be resumed next year.

BROMPTON-BY-SAWDON, NR

BROMPTON MOOR HOUSE SE933883

A perfect barbed-and-tanged arrowhead in light grey flint was found on the surface by Mr P. Bland in 1971. It measures 38 mm in length and the two edges are finely serrated.

BOTHY NURSERY, WYKEHAM FOREST SE939876

A barbed-and-tanged arrowhead in grey flint, with one tang missing was found on the surface by Mr P. Bland in 1971, together with a second small crudely-shaped example.

BROMPTON-BY-SAWDON, NR (cont.)
BOOT HILL NURSERY, WYKEHAM FOREST SE927875

A barbed-and-tanged arrowhead in grey flint, with one tang missing, was found in 1971 by Mr P. Bland on the surface.

COMMONDALE, NR
NORTH INGS MOOR NZ655106

A short length of the paved causeway of a pannierway extending down to the footbridge over Whiteley Beck has been examined by R. H. Hayes and J. G. Rutter. The bridge is formed from two large stone slabs. No paving could be traced on the north bank of the beck. (See also under DANBY).

DANBY, NR
DANBY RIGG NZ705061

Mr D. Smith of Ordnance Survey Archaeology Division has noted two parallel banks with rows of three pits on the inner margins situated on the west side of the ridge. They are in line with lengths of bank extending to the eastern edge of the ridge (709060) which are already shown on the OS 6-inch sheet. It appears to be an attempt to complete a cross-ridge dike which was abandoned in favour of a dry-stone wall a few metres to the south.

GILLING EAST, NR
TEMPLE HILL SE613764

The OS 6-inch map SS76NW shows a hatched line extending E - W across this prominent rise south of the village. The area was examined by Messrs W. R. Goodall, M. K. Maw and R. H. Hayes, together with Mr Harrison, a local farmer, in February 1972 and the line was found to be probably that of a natural fault. A slight balk overlooked Warren Farm to the south. The name 'Temple' may originate from the 'temple' in the nearby Gilling Park where it stands at the south-west end of a long avenue. There were no signs of foundations in the ploughed fields on Temple Hill.

POTTER LANE SE614769

This is the site of a late medieval pottery kiln which is now under a bungalow erected in 1930. Sherds of green-glazed ware including part of a rectangular trough-like dish have been given to Mr J. Rushton. There were also fragments of cisterns with bung-holes similar to those found at the Stearsby kiln (Transactions No. 14, p. 51).

GLAISDALE/

GLAISDALE, NR

HART LEAP, GLAISDALE RIGG NZ734035

Two small standing stones named Hart Leap are shown on the OS 6-inch map. They stand on the remains of a short cross-ridge earthwork previously unrecorded apart from some unpublished notes by Dr F. Elgee. Downhill, towards the former Highdale or Hardhill Farm, the earthwork is visible as a bank 6 or 7 ft wide between two ditches. The bank is crowned by a stone parapet of which the Hart Leap stones and three others remain.

Tradition maintains that the Hart Leap stones, which are 42 ft apart, mark the length of the death leap of a hart. The western stone measures 21 ins. in height and 20 ins. by 10 ins. at the base and is inscribed HART LEAP. The eastern stone stands 26 ins. high and measures 20 ins. by 13 ins. at the base. (R. H. Hayes and J. G. Rutter)

DOUBTING CASTLE, HARDHILL GILL NZ736030

Paved pannierway leads from Common Lane to the ruin of this cottage, but was probably built to an iron bloomery, as a large slag heap is visible to the west of the ruin. The latter measures 44 ft by 18½ ft and was divided into two cottages in the 19th century with fireplaces and salt-boxes in the gable-ends. It was later used as a barn with the thatched roof remaining until 1939-40. (R. H. Hayes)

GLAISDALE RIGG NZ732032

A short length of paved pannierway was found by Mr F. Hall and the late Mr George Harland extending NE - SW on Glaisdale Rigg to the west of Highdale Farm.

GOATHLAND, NR

THORNHILL NZ833002

A polished stone axe of Neolithic type has been ploughed up in an intake made in 1940. The axe is of very light chalky greenstone, flat-sided, 17 cm long, 8 cm wide and 3 cm broad. Given to Mr T. Dodsworth of Pickering. Several flints have been found in the same area.

ALAN TOFTS NZ829027

Mr D. Smith of the Ordnance Survey Archaeology Division has located the two 'cup-and-ring' stones found at Alan Tofts, north-east of Beckhole, by Mr R. H. Hayes and Mrs A. Hollings in 1939. Mr Smith also discovered a third 'cup-and-ring' stone in the same area. The positions of the stones are as follows: NZ82950273, 82930301, 83170283.

WIDOW HOWE MOOR SE862998

A short length of paved pannierway has come to light through trench-cutting operations south-east of Widow Howe Round Barrow. It extends uphill in about a N - S direction. (R. H. Hayes)

GOATHLAND (cont.)
WIDOW HOWE MOOR NZ873008

A more extensive length of paved pannierway extends from a point near the Foster Howes Round Barrows in a south-westerly direction towards Widow Howe but no connection can be traced between the two sections of paving. (R. H. Hayes) See also under SNEATON.

HAROME, NR
OLD MANOR HOUSE SE644820

Demolition and removal of this large cruck-framed structure took place in the winter of 1970-71. Later in 1971 the manor house was re-erected at the Ryedale Folk Museum to a modified plan. For further details see Research Report No. 8 of the Scarb. & Dist. Arch. Soc. which is in course of publication.

HUTTON BUSCEL, NR
HUTTON BUSCEL MOOR SE949890

A cup-marked stone was found on the site of a round barrow by Mr D. Smith in 1972. It is an irregular block of limestone measuring 17 x 14 x 9 cm but is broken. There are two cup-shaped hollows. Deposited in the Scarborough Museum.

KILDALE, NR
CRAG BANK WOOD NZ630098

In 1959-60 Mr R. Close found the floor of a round or oval hut. Excavation disclosed part of a floor paved with stone slabs but no finds were made. The site is situated immediately west of the easternmost enclosure of the so-called 'Celtic Fields' mentioned by Elgee (Early Man, p. 218).

In 1971-72 excavation was resumed by Mr Close assisted by Dr D. A. Sprott and the number of finds made included a beehive-type quern, potsherds of native and Romano-British ware including part of a tile-red mortarium of 2nd-century type, traces of iron and fragments of jet ornaments. The site has now been planted with trees.

LASTINGHAM, NR
OTTERBURN GARTH SE729904

Mr R. H. Hayes reports again on excavations undertaken on this site in October 1971 and at Easter 1972 (see Transactions No. 13, pp 55-6, and No. 14, p. 55 for earlier reports).

The west wall footings of the medieval building had two postholes between flag-stones - probably a doorway. The clay floor of the 13th-14th century house was bounded on the east by a large modern ash-pit which had cut into it. The prominent bank on the south side proved to contain a mixture of tumbled stone and potsherds of various periods to the 18th century. On the north-west corner a bank of natural shale

LASTINGHAM (cont.)
OTTERBURN GARTH (cont.)

had been revetted at the base by a line of squared boulders. on top were tumbled stones of a dry wall with partly burnt paving behind. Pottery from this area was chiefly of the 17th and 18th centuries. A trial excavation at the north end of the garth produced wall-footings and 16th and 17th-century sherds.

DAISY FARM (former) SE727904

From west of the house and adjacent to the churchyard and site of Benedictine monastery Mr H. Frank has obtained a number of medieval and later sherds. These are chiefly of jugs glazed green or brown with strap handles, but some belong to unglazed cookpots. Some sherds may be kiln-wasters. (R. H. Hayes)

PICKERING MARISHES, NR
BELLIFAX GRANGE SE803786

Mr T. Dodsworth reports the finding of a quantity of late medieval pottery sherds of green-glazed jugs and a platter.

RIEVAULX, NR
RIEVAULX VILLAGE SE577851

Mr Arthur Robinson has dug up the greater part of a large green-glazed jug 35 cm high, 10 cm rim diameter and 17 cm across the base. The ware has a grey core and the exterior is green-glazed almost to the base. The internal glaze is patchy. A bung-hole is situated 3 cm above the base. The two strap handles are ribbed. This type of pot was made at the Potter House kilns, Helmsley (Transactions No. 14, p. 54), and at Stearsby (ibid., No. 14, p. 51).

SCARBOROUGH, NR
HALL FARM, OSGODBY TA055848

Mr F. C. Rimington reports the destruction of the remains of the Chapel of St Leonard which he recorded in these Transactions for 1960 (No. 3, pp. 10-15). Mr Rye's sketch of this building was used as a cover illustration for the Transactions for 1968 (No. 11).

SINNINGTON, NR
CLIFF FARM SE750851

A small axe or hoe in fine-grained sandstone, 10.5 cm long, 3 cm broad and 2.5 cm thick, was found during ploughing. (R. H. Hayes)

SNEATON/

SNEATON, NR
YORK CROSS RIGG NZ875010

A short length of paved pannierway extends in a north-easterly direction from near the Foster Howes Round Barrows. It is probably a continuation of the section on Widow Howe Moor (NZ873008) noted under GOATHLAND. The York Cross Rigg causeway appears to lead towards Foss Lane and so to the pannierway fragments near Falling Foss (NZ889035) (see under ESKDALESIDE), but R. H. Hayes and J. G. Rutter have been unable to find any intervening traces.

SPROXTON, NR
WASS MOOR, WATERLOO FARM SE574812

Surface finds of flint including a broken leaf-shaped arrowhead, scrapers, cores and flakes, have been found in 1972 by Messrs W. R. Goodall and M. K. Maw.

WESTERDALE, NR
LITTLE HOGRAH MOOR NZ648064

Series of small bell-pits reported by Mr R. H. Hayes. This is the possible source of iron ore used in Baysdale bloomery excavated in 1959-64 (see Transactions No. 8, p. 37)

WHITBY, NR
CARR HILL, SLEIGHTS NZ873088

A quantity of medieval and post-medieval sherds have been given to Mr J. Rushton from this site.

SCARBOROUGH AND DISTRICT ARCHAEOLOGICAL SOCIETY

RESEARCH REPORT NO. 8

CRUCK-FRAMED BUILDINGS IN RYEDALE & ESKDALE

The number of cruck-framed buildings still surviving in north-east Yorkshire may be greater than in any similar area of Britain, and this form of construction probably lasted as long in the district as anywhere in the British Isles. For many years Mr R. H. Hayes of Hutton-le-Hole has been collecting information, photographs, plans and drawings of these cruck buildings. In recent years he has been joined by Mr J. G. Rutter of the Scarborough Museum. Together they have augmented and re-assembled this material, producing a comprehensive and co-ordinated survey covering most of Ryedale and Eskdale including the towns of Kirbymoorside and Pickering. This important record of the cruck-framed houses of north-east Yorkshire is now available as Research Report No. 8 of the Scarborough and District Archaeological Society, profusely illustrated with over 60 photographs, maps, drawings and plans.

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